Cathay February 2022

www.cathayradio.org

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Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, Repeater: WB6TCS - RX 147.210, TX 147.810, Offset +0.6 MHz, CTCSS/Tone PL100 Hz

Please note: Repeater: N6MNV UHF 442.700 Mhz, Offset +5MHz, CTCSS/Tone PL 173.8 Hz in South San Francisco is cross linked every Monday Night Net at 9 p.m. to WB6TCS 2-meter repeater.

The CARC Monday night net is the best way to find out the latest club news. All check-ins are welcome.

Message from the President: George Chong, *W6BUR*

Hello CARC Members and Friends;

Many thanks to Mr. Denis L. Moore – WB6TCS for the use of his repeater for our CARC Monday Night Net.

I wish to thank our CARC members that set aside their valuable time to participate in our Monday night's nets.

I wish for you all to have a Happy Chinese New Year.

Chinese New Year for 2020 is on Tuesday, February 1, 2022, the Year of the elemental water Tiger.

According to the Chinese calendar, folks born in the year of Tiger are in 1938, 1950, 1962, 1974, 1986, 1998, 2010 or 2022.

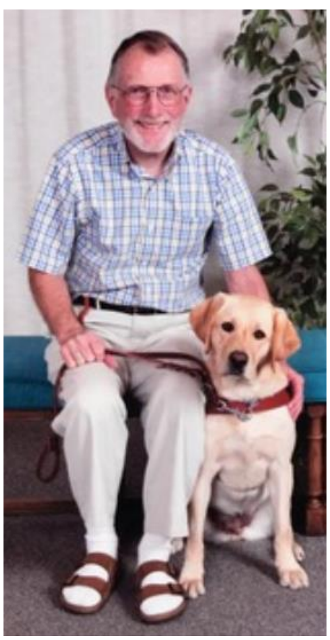
People born in a year of the Tiger are known to be brave, competitive, strong sense of self confidence, strong leadership abilities and have good learning abilities. They are energetic and tend to be active in sports and enjoy a sense of adventure.

The best romantic partners for Tiger folks are those born in year of the Dragon, Horse, Ram, Rooster, Dog, and Boar.

Note: Actor Tom Cruise was born on July 3, 1962, a Water Tiger

Due to the latest spreading of the COVID-19 Omicron variant, the CARC will not be hosting a Chinese New Year Luncheon to ensure the safety of our members.
I know many of you will be disappointed as I am with this announcement but there may be other opportunities throughout the year to host other CARC events.

Silent Key



George Griffin - NT6G (October 12, 1937- January 28, 2022) age 84 peacefully passed away from congestive heart failure. Born in the San Joaquin valley, French Camp, California. In his youth he lived Oakdale and later in Sonora California.

He is a graduate of Sonora High School. After high school he joined the US Army and was stationed in Japan. Upon honorable discharge from the Army, he attended Sacramento State University then moved to San Francisco where he worked as a civilian at Fort Mason.

For many years he enjoyed traveling extensively while working as an insurance auditor for Fireman's Fund based out of the San Francisco and Denver offices. He had to retire early due to his loss of eye sight from retinitis Pigmentosa.

Prior to his retirement, George was an accomplished and serious amateur photographer. He also enjoyed running and completed half marathons.

In retirement, George got into Ham Radio where he got his Technician Plus license in 1997, General class in 1998, Advanced class in 1999, and Extra class in early 2000. He became close friends with fellow CARC Ham member: David Chan, NC6D. He enjoyed receiving and closely followed the CARC monthly newsletter.

George and his wife Kate were long time supporters and active participants with the CARC and would attend many of the club's luncheons. His kind and gentle nature were well known among the club member and he will be greatly missed.

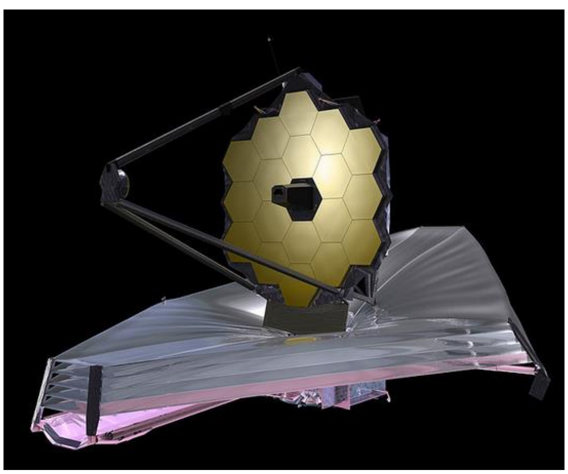
His Guide Dog shown in the photograph is Joanie, a Yellow Labrador Retriever from Guide Dogs for the Blind in San Rafael, California.

George is survived by Kate Griffin, his beloved wife of 54 years and numerous cousins.

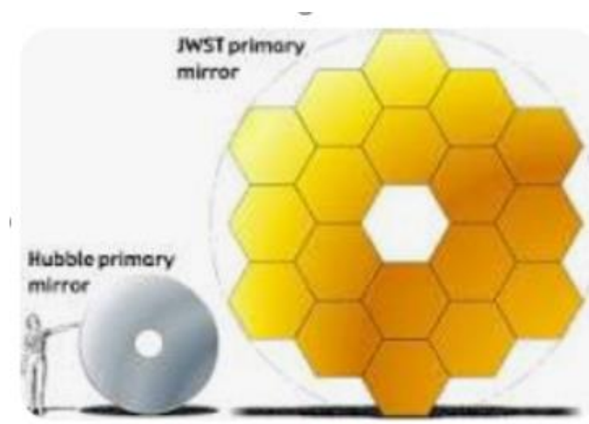
Many thanks to Kate Griffin for providing the detailed information for this Silent Key write up. We all have the deepest sympathy for her loss.

Tech Article Introduction:

Astronomers around the globe are all very excited over the December 25, 2021 successful launching of the James Web Space Telescope (JWST), an international 21st-century space observatory. The JWST is several next generations beyond that of the 31 plus years old Hubble Space Telescope.



James Webb Space Telescope Deployed



Hubble and JWST primary mirror compared to each other.

The JWST primary mirror at 21 feet 4 inches is about 3 times the diameter of the Hubble Space Telescope, making it able to see at distances 9 times greater and in combination with the latest scientific instrumentation making it 100 times more powerful.

Unlike the Hubble Space Telescope, the JWST obits the Sun at a position known as the second Lagrange point (L2) which is 1 million miles from the earth and primarily operates in the infrared spectrum (covering 0.6 to 28 micron) instead of the Hubble's visible light and ultra violet spectrum (covering 0.8 to 2.5 microns).

The JWST is optimized to view more distant objects (such as the earliest and furthest galaxies) since they more likely to be highly redshifted thus pushing their light from the UV and optical into the near-infrared. Hence, the JWST observes distant galaxies and the Hubble space telescope observes galaxies much closer, thereby complementing each other's abilities.

The JWST is named after James Edwin Webb (October 7, 1906 – March 27, 1992), the second administrator of the National Aeronautics and Space Administration (NASA), who oversaw the very successful NASA Apollo program.

Please go the Tech Article Section for more information.

Chat sub s'em to all you CARC members! - George W6BUR.

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:
http://www.arrl.org/find-an-amateur-radio-license-exam-session

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) is a unit of trained professionals who supply communications support to the agencies of the City and County of San Francisco, particularly during major events/incidents. ACS goals are the support of gathering and distribution of information necessary to respond to and recover from a disaster.

The ACS Net begins at 1930 hours (7:30 p.m. PT) local time each Thursday evening, on the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills, practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS members perform Net Control duty on a regular basis
On the second Thursday of each month, the net is conducted in simplex mode on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz.

ACS holds its General Meetings on the third Tuesday of each month from 1900 hours to 2100 hours local time. Currently meeting are exclusively conducted over Zoom during the COVID-19 pandemic, ACS looks forward to meeting in person again as soon as possible.

Upcoming meeting dates in 2022 are:

- March 15, 2022
- April 19, 2022
- May 17, 2022

Location of in person future ACS meetings are yet to be determined as the regular location is under reconstruction until January 2023. All interested persons are welcome to attend. For further information, contact Corey Siegel KJ6LDJ <kj6ldj@gmail.com>.

For more information, please attend an ACS meeting, check in on the ACS radio net, or call 415-558-2717.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department (SFFD).

http://sf-fire.org/calendar-special-events

+ TBD

Spring into Readiness!
This Virtual Drill will take place from 9am-12pm with virtual skill rotations and words from some special guests!

Invitation and sign-up coming next week!

+ Recertifications - Coming Soon!

Now that San Francisco has entered the Red Tier for COVID-19 Transmission (see https://covid19.ca.gov/safer-economy/#county-status for more details), we are working to schedule recertification trainings for NERTs who were current as of December 2019 or later. Stay tuned for details and times over the next month! jl(At this time, all class 5&6 recerts will take place outdoors only, at the SFFD Division of Training at 19th St & Folsom St in the Mission.)

***SFFD DOT** is the Fire Department Division of Training. All participants walking, biking or driving **enter through the driveway gate on 19th St.** between Folsom and Shotwell. Parking is allowed along the back toward the cinderblock wall.

Visit ***www.sfgov.org/sffdnert*** to learn more about the training, other locations, and register on line. Upcoming Special NERT Events.

San Francisco Police Department: Auxiliary Law Enforcement Response Team (ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will no longer need to complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into two 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers other than those available to all citizens.

SFPD ALERT Training (New Members)

The next SFPD ALERT training class has been scheduled for: TBD

* Class date indicated are only for new members

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register for a training class by contacting the ALERT Program Coordinator, Marina at sfpdalert@sfgov.org, or by telephone at 415-401-4615.

SFPD ALERT Practice/Training Drill

All active/trained ALERT members are asked to join us for our next training drill, via scheduled for on

TBD

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Lt. Marina Chacon (SFPD Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:
https://sfgov.org/policecommission/alert

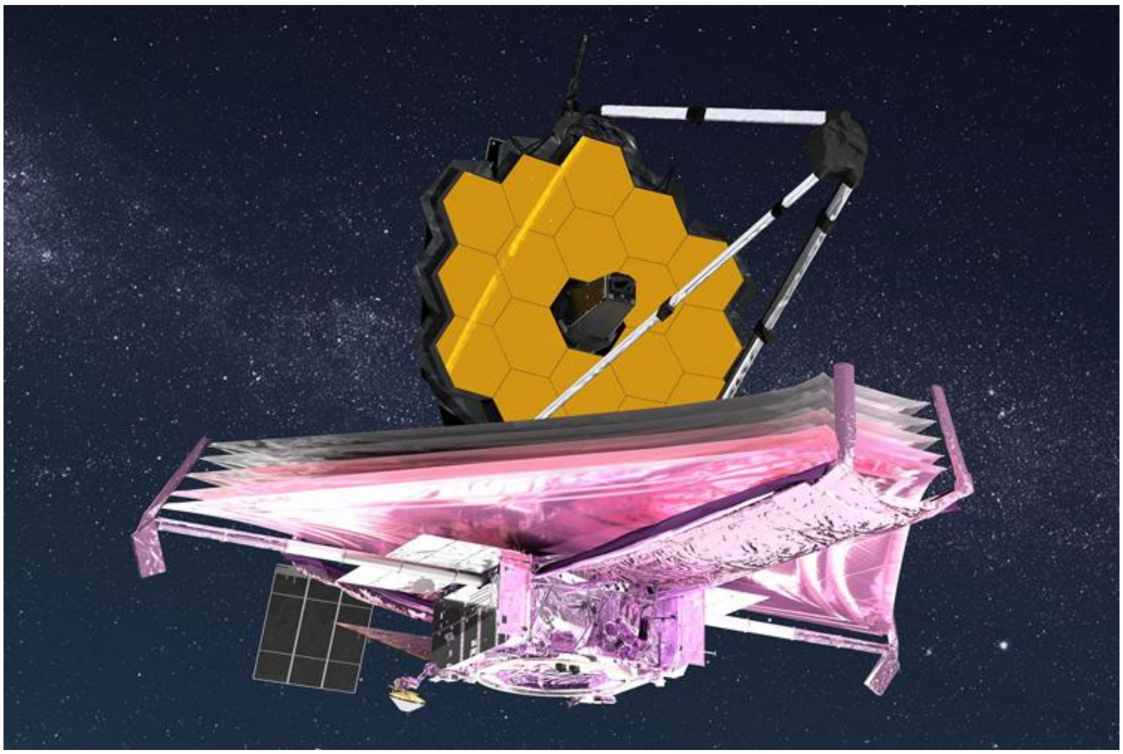
Tech Article

UNIVERSITY OF CALIFORNIA

Astronomers to put new space telescope through its paces

By Robert Sanders, UC Berkeley Thursday, January 27, 2022

https://www.universityofcalifornia.edu/news/astronomers-put-new-space-telescope-through-its-paces



Credit: NASA's Goddard Space Flight Center
An artist's depiction of NASA's James Webb Space Telescope, which will peer into the very early years of the universe and the atmospheres of nearby exoplanets.

Learn more about the James Webb Telescope

Scientists across the UC system have played a major part in the James Webb Telescope project. Learn more about the role of UC Santa Cruz astronomers and project adviser UC Santa Cruz distinguished professor emeritus of astronomy and astrophysics Garth Illingworth here

NASA's latest and snazziest mission, the James Webb Space Telescope (JWST), launched on Christmas Day, deployed its 21-foot-wide mirror a mere two weeks

ago and reached its orbital destination earlier this week. With a flashy new telescope now nearly a reality, astronomers at the University of California, Berkeley, are chomping at the bit to start observing.

After months of anxiety about whether the $10 billion telescope — 25 years in the making and the successor to the highly successful Hubble Space Telescope — would even survive launch, let alone unfold from its chrysalis into a gold-blinged telescope, these astronomers feel confident enough to plan summertime observations of nearby galaxies and of some of our closest neighbors in the solar system.

"I'm so thankful that it launched and everything appears to be working. I think it's going to be just incredible," said Ned Molter, a UC Berkeley doctoral student working with campus astronomer Imke de Pater, who leads one of 13 teams given the chance to make early observations with the JWST. "I speak for many of us to say we're over the moon about the launch."

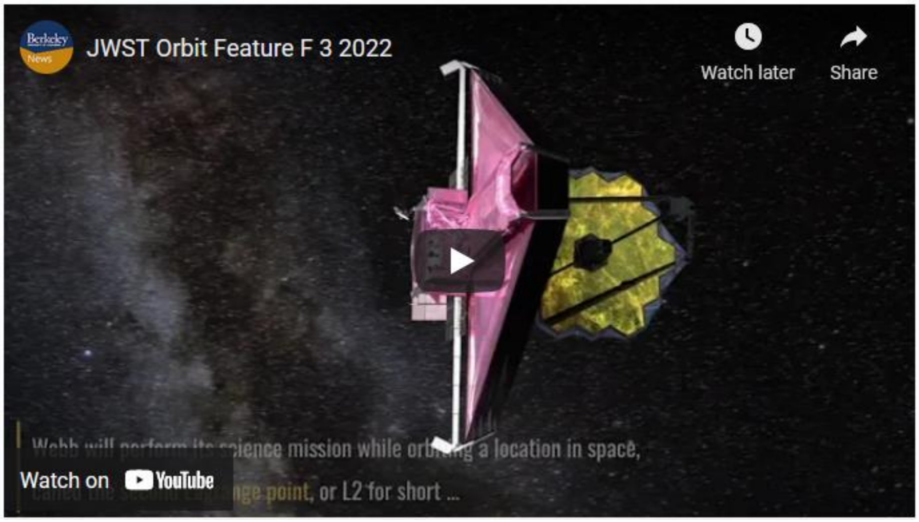
Dan Weisz and his team will observe local star clusters and galaxies using the superb sensitivity of the James Webb Space Telescope. *Credit: UC Berkeley*

"What a beautiful Christmas present to have the James Webb Space Telescope launch on Christmas Day," echoed Dan Weisz, a UC Berkeley associate professor of astronomy who leads another team awarded observing time as part of the "early release science" program. "The whole of 2022 is going to be a Webb extravaganza. The first part of the year we'll get the telescope up to speed and commissioned, and in early summer and fall we'll start observing and then publishing a slew of papers about the first results. It is going to be the year of Webb. It's fantastic."

After its launch exactly one month ago, on Dec. 25, the JWST began coasting through space to its final destination, a point referred to as L2: a special place in the solar system — a Lagrange point — where the gravitational pull on the telescope by Earth is exactly balanced by the gravitational pull of the sun. The JWST settled into orbit around L2 on Monday, Jan. 24, where it will remain forever, looking outward into the cosmos from the side of Earth that is opposite the sun.

Six-month commissioning

As the telescope transited to that point — 945,000 miles from Earth and four times farther from Earth than the moon — scientists began aligning the primary mirror, which is a cluster of 18 smaller, gold-plated hexagonal mirrors, with the secondary mirror to get the sharpest images possible. Other scientists tested the many instruments onboard to make sure they work properly to record infrared light from objects in space.



https://www.youtube.com/watch?v=nQbhd2cojj0

This video, issued by NASA on Jan. 24, explains how the James Webb Space Telescope will observe the heavens from its orbit around L2, a point on the side of Earth opposite the sun.

Credit: NASA's Goddard Space Flight Center

Following the six-month-long commissioning phase, 13 teams chosen by NASA will take the new telescope for a spin, putting its instruments through their paces by targeting astronomical objects that will be the major focus of scientists during the telescope's planned 10 years of operation, and probably much longer.

"To have two of the 13 led by people at Berkeley was pretty exceptional," said de Pater, a Distinguished Professor of the Graduate School and Distinguished Professor Emerita of astronomy and earth and planetary science who wrote her proposal in 2017 before her retirement from teaching last year.

Given the JWST's primary mission to study dim, distant galaxies and faint exoplanets, the observations planned by de Pater and her team of about 50 astronomers may seem out of character: They will turn the telescope on one of the brightest objects in the sky, Jupiter.

Imke de Pater will use the mid-infrared sensitivity of the space telescope to study cloud layers in Jupiter's atmosphere. *Credit: UC Berkeley*

"They (NASA) wanted to get involvement from the astronomy community to see what is feasible, what Webb can do, and really pushing it to the limits," de Pater said. "We came up with the idea to look at the Jovian system, because Jupiter is extremely bright, but next to Jupiter, you have these really faint rings and some really faint satellites. Moreover, we will look at faint spectral features on Io and Ganymede while they are eclipsed in Jupiter's shadow, a quite challenging experiment since the two bodies will be very close to Jupiter and invisible at visible wavelengths. We thought it would make a really nice proposal to look at these large differences in brightness."

During her decades-long career, de Pater has used radio telescopes and optical and infrared telescopes, such as the pair at the W. M. Keck Observatory in Hawai'i and the Hubble Space Telescope, to study the atmospheres of our solar system's large planets, with particular attention to Jupiter's large storm, the Great Red Spot; the volcanoes of Jupiter's moon, Io; the icy surface of another Jovian moon, Ganymede; and Jupiter's rings. She is particularly eager to take advantage of the JWST's ability to detect mid-infrared light, which will give her access to different layers of Jupiter's atmosphere, ones she has not been able to explore using earthbound telescopes.

"We hope to find out more about the dynamics in the Great Red Spot and the aurora over the South Pole, and the chemistry and physics of the troposphere and into the stratosphere," she said.

Doctoral student Ned Molter hopes to observe Jupiter's moon Io this summer, among the first science observations with the Webb telescope. *Credit: UC Berkeley*

Molter, who expects to graduate in August and remain with de Pater as a postdoctoral fellow to work with the JWST, plans to use the telescope's Aperture Masking Interferometer to study the individual volcanoes on Io. With new mid-infrared data, he hopes to accurately measure the temperatures of the volcanoes, which will allow comparison with volcanoes on Earth.

As a new graduate student back in 2017, he had hoped to write his thesis using JWST observations of Io's volcanoes, but as the launch date was pushed further and further out, he elected to study the atmospheres of Uranus and Neptune instead.

“We sort of pivoted away from the Io science when Webb was being delayed so much,” Molter laughed. “I had to graduate in a certain amount of time, so I found other projects.”

Galaxy formation and dark matter

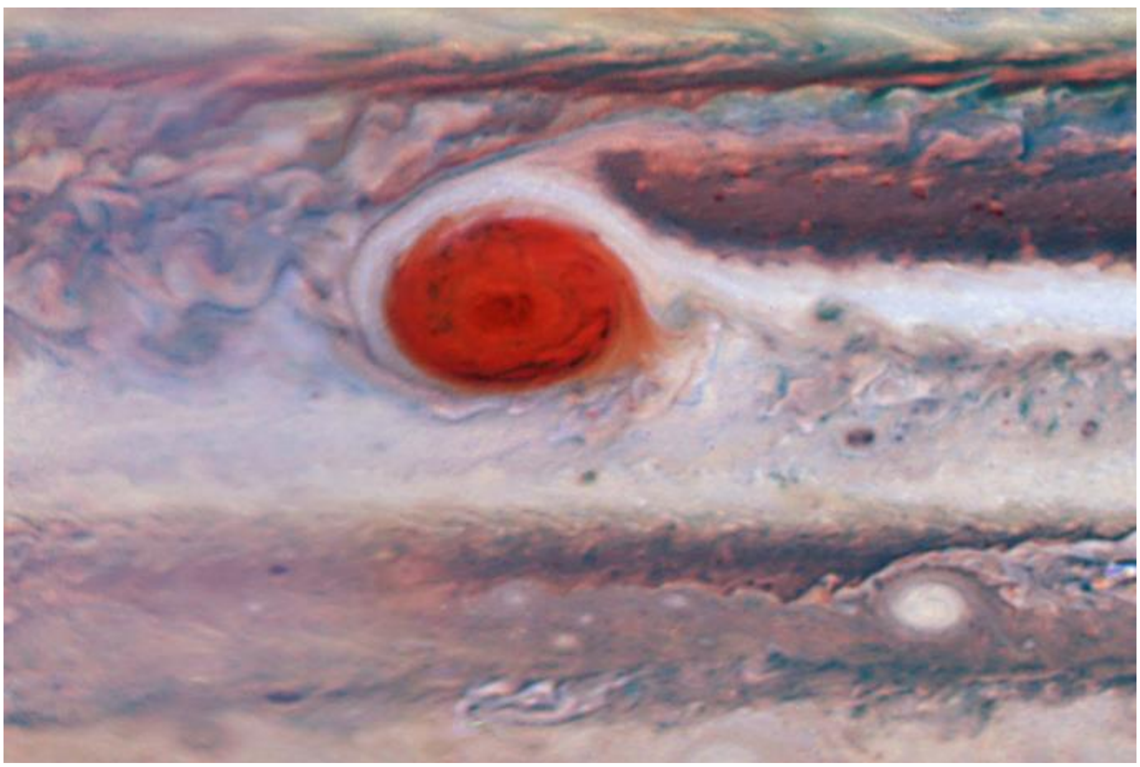
Weisz, an associate professor of astronomy, and his team will use their allotted time with the JWST to observe the Milky Way Galaxy and its nearby satellite galaxies. Weisz’s main interest is galaxy formation, and in particular, the role of dark matter — the still mysterious stuff that makes up 85% of the matter in the universe — in galaxy formation.

The Hubble Space Telescope has taken many images of M-92, including this closeup in 2017. A ball of stars called a globular cluster, it orbits our galaxy’s core like a satellite and is one of the brightest globular clusters in the Milky Way. UC Berkeley’s Dan Weisz and his team will track the movement of faint stars in this cluster using the new James Webb Space Telescope. *Credit: ESA/Hubble & NASA; Gilles Chapdelaine*

He and his team of about 50 astronomers are focused on three different targets. One is M-92, one of the oldest globular clusters in the Milky Way and one of the most photographed by Hubble. The hope is that the JWST can detect the oldest and faintest stars and thus provide a more precise age for the cluster — previewing what the JWST could do for all of the 100 or so globular clusters in the Milky Way.

Another target is an ultrafaint dwarf galaxy — a satellite of the Milky Way 98,000 light years from Earth — that has surprisingly little normal, visible matter, but instead appears to be mostly dark matter. The JWST should be able to detect the galaxy's very faint stars and, with data from Hubble, map their motions in 3D, allowing astronomers to precisely weigh the dark matter and plot its distribution, constraining some of the theories of what dark matter may actually be.

Even farther away — 3.26 million light years — is a star-forming galaxy that Weisz hopes will test the resolution of the JWST, and perhaps improve the cosmic distance ladder used to measure the expansion of the universe. All three targets will require exploring the capabilities not only of the telescope, but of the detectors that produce the data.



A Hubble Space Telescope image of sunlight (visible wavelengths) reflecting off clouds in Jupiter's atmosphere. With the Webb telescope's mid-infrared detectors, Imke de Pater and her team hope to see deeper into the Great Red Spot.
Credit: NASA, ESA, and Mike Wong of UC Berkeley

"We're building the software needed to basically take the JWST images and turn them into scientifically useful data products, like radiation fluxes, luminosities of individual stars, and galaxies and star clusters in our Milky Way and nearby universe," he said.

“And then, we’re releasing all the analysis software, the pipelines used to reduce it, the catalogs we’re making — all of that stuff is just going to be made public as soon as we’re done, so the community can immediately take it and apply it to their use observing or use it to plan future proposals.”

While Weisz expects the JWST to help advance his field of galaxy formation in the local universe and refine distance measurements in the cosmos, he predicts the greatest discoveries will be about the very early universe and the conditions on planets around other stars, which were NASA’s primary goals for the JWST. Some key questions about the history of the universe and of life in the universe could be answered in the next few years — all potentially worth the price of the JWST.

“I think Webb has gotten a lot of negative attention because of its $10 billion price tag when it was only supposed to be a couple billion,” Weisz said. “But at the end of the day, you look at this and you say, ‘Boy, if this is now going to last 10, 15 years, and it’s going to open windows onto planets and ancient stars in the early universe and tell us about how we got here, it really is just kind of in line with all the other amazing things that NASA has done.’ You look at it in terms of its discovery potential, and I really think it’s a great value.”