

SPECTRUM

Northern Cross Science Foundation Newsletter

October 2020

Bobcat fire narrowly misses Mount Wilson observatory

By Ernie Mastroianni

The Bobcat fire north of Los Angeles missed the historic [Mount Wilson Observatory](#) by just 500 feet earlier this month, but was beaten back by firefighters working on the ground and from the air. The fire was one of dozens that burned wild in western states from California to Washington, killing at least 33 people, burning 3.2 million acres in California alone, and destroying about 4,000 structures in three states.

The skies over San Francisco were rendered an [eerie orange](#) due to the heavy smoke, which drifted across the US and coated skies here in Wisconsin and much of the US with a grey pall. At nightfall, the smokey soot left even Polaris invisible to the naked eye on one otherwise cloudless night over my Whitefish Bay home.

Discoveries made by astronomers on Mount Wilson dramatically changed our understanding of the universe. The 60-inch and 100-inch telescopes were each the largest in the world when they opened in the early 20th century. Astronomer Harlow Shapley, who used the 60-inch telescope to [study Cepheid variable](#) stars in globular clusters, determined that the sun, rather than being in the center of the Milky Way, was actually 2/3 out toward its edge. [Edwin Hubble](#) used the 100-inch telescope to study Cepheid variables in



Above: Flames come perilously close to the dome that houses the Mount Wilson 100-inch reflecting telescope on September 20. Mount Wilson/HPWREN photo.

Below: A smoke map from [airnow.gov](#) shows the extent of smoke on September 22.

the nearby Andromeda Nebula. His work revealed that Andromeda was instead another galaxy similar to ours and nearly 2.3 million light years away. The universe was much, much larger than anyone had previously thought. These days, the telescopes are retired from active research and are available



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September General Meeting

The NCSF September monthly meeting featured guest speaker [Mike Keefe](#), who, via Zoom, gave a presentation on electronically-assisted astronomy (EAA), a growing field that falls between visual observing and astrophotography. Keefe is a member of the Raleigh (N.C.) Astronomy Club and a [NASA Solar System Ambassador](#). He defined EAA as a method to observe in real time, as opposed to astrophotography, in which large amounts of data are collected for later processing.

He began by outlining its history, when EAA was simply a bulky video camera attached directly to a telescope while feeding live images to a television. These days, he continued, the cameras are better, more light-sensitive, and much smaller. They've paved the way for EAA to become a valuable

outreach tool at star parties.

Keefe highlighted many EAA advantages. It allows younger children and those with impaired vision to better view the night sky. Virtual star parties can be held. Smaller scopes can reveal deep space objects in crisp detail and in color. Socially distant observing becomes manageable in pandemic times.

He also touched on the drawbacks: extra gear and cables, complexities in setup and

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**October 1, Thursday
General Meeting**
Online via Zoom
7:30 pm

**General Meeting
Post-pandemic**
7:00 p.m. Astronomy 101
7:30 p.m. Main Program
Location:
GSC Technology Center
W189 N11161 Kleinmann Dr.
Germantown, WI

Please email editor Ernie Mastroianni with dates and times of any upcoming NCSF events:
ernie.mastroianni@gmail.com

Small scopes, heavy smoke, and Perseids

The Small Scope annual session

A light rain didn't stop five club members from showing up for the Small Scope Star Party. Members Gene and Charlotte DuPree, Harvey Sherman, Katie Zens and Joyce Jentges gathered in the parking lot at Puckett's Pond at Harrington Beach State Park on September 12. The rules for the event: no telescopes of more than 6 inches of aperture allowed.

The light rain ended and some breaks in the clouds were seen. Gene spotted Jupiter with a Celestron Nexstar 5 inch scope and Katie used a Meade refractor. However, the clouds were stubborn and the star party was adjourned after 8:30 pm when a light rain returned.

- Joyce Jentges

A smokey back yard

The forecast called for clear and steady skies for the early hours of September 16, so I planned to shoot Mars from my Whitefish Bay backyard. I rose at 3 a.m., went outside and looked up. Mars was glowing red, but dimmer than usual. That's when I noticed only two stars in the entire sky!

They were probably Aldebaran and Capella, but it was hard to tell for certain. My yard is not ideal, partially blocked by trees with excessive light pollution.

Still, just two stars! Polaris was not naked eye, though I could pick it up through my polar alignment scope. The smoke from the western fires was thick that night, and although the seeing was steady, Mars was off by a magnitude or so. Exposures were reduced to 1/10 of a second, gain was set high. Even for Mars, it was not a good night.

-Ernie Mastroianni

Relaxing under the meteors

This year the stars lined up for me to sit for an evening and just enjoy the annual Perseid meteor show. Thanks to fellow club member Jim Macak and our Slack channel, I found out that he was going to be out to Harrington Beach Tuesday, August 11.

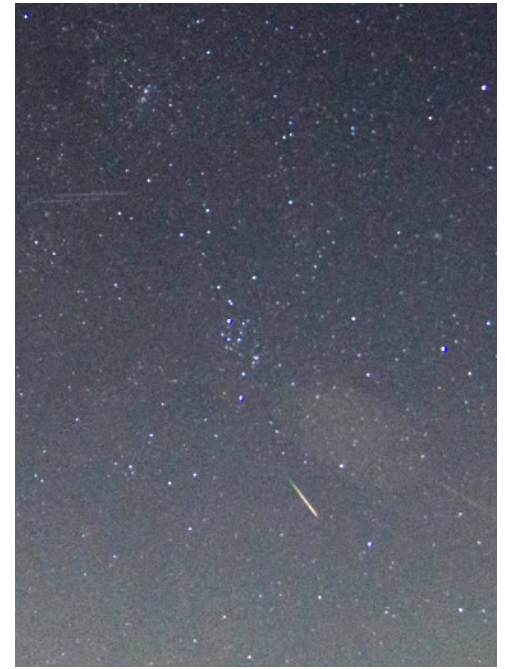
A clear night was predicted on both website apps *Clear Outside* and *Astrospheric*. As it turned out, several NSCF club members and general public viewers came to watch the show too. There was enough room to socially distance.

I did not bring a telescope, just binoculars and a camera. While it was not a spectacular show, I think I logged about 10-12 noticeable meteors. The highlight of the night for me was a meteor that actually left a contrail, a smokey glowing trail across the sky. I do not ever remember seeing that before.

While it was not a phenomenal show, it was relaxing. I do remember other nights with relatives or friends and lots of mosquitoes or dodging clouds that did not produce either. So I can say that for once, I got to sit back in my lawn chair and watch from sunset to 1am in the morning, just gazing into the sky.

By the way, there is always something to discuss. Tuesday, for whatever reason, it was noticed that there was a skyglow directly east, across the lake. I could not ever remember seeing something like that. Usually the lake is the dark sky refuge. It was fun to listen to the ooohs and aaahs throughout the night. The camera did pick up three small Perseid meteors.

-Mike Borchert



Above: A Perseid meteor streaks through Perseus. Also visible: two faint satellites (slightly enhanced), the Double Cluster, and M34. **Below:** A meteor, the Pleiades, and a mysterious glow to the east. Mike Borchert photos



Near miss from Bobcat fire

from page 1 for amateur use. Rates for the [60 inch](#) start at \$1,050 for a half night with groups up to 25, the [100-inch starts at \\$2700](#). The 100-inch telescope is the world's largest that can be used by amateur astronomers.

But for now, the combination of the active fires and the pandemic have forced the closure of Mount Wilson to the public.

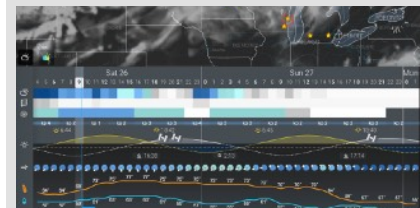
According to Mount Wilson executive director Tom Meneghini, the fires did not appear to do much damage. "No structural or superficial damage was sustained by our domes and other buildings," he said. "I have yet to uncover the mirrors on the big scopes to see how much ash/soot has accumulated. I plan to clean them this weekend."



The 100-inch telescope. Photo by Ken Spencer/CC BY-SA 3.0

October program

Jeff Setzer will discuss [Astrospheric](#), the latest app for predicting sky conditions.



AL calendars for sale

The 2021 Astronomical League calendars are available for \$17. Contact Gene DuPree at 262-675-0941 to be added to the order list. We need a minimum of 12 orders to purchase at this price.

NASA's Commercial Crew program update

By Joyce Jentges

October is going to be a busy month at the International Space Station with several different launches and landings. October 14, 2020 is the launch of [Expedition 64](#). Leaving from Russian soil, NASA astronaut Kate Rubins and cosmonauts Sergey Ryzhikov and Sergey Kud-Sverchkov will ride a Soyuz capsule for an extended stay at the International Space Station.

The [Expedition 63](#) crew, composed of NASA astronaut Chris Cassidy and Cosmonauts Anatoly Ivanishin and Ivan Vagner, will land in Kazakhstan on October 22, 2020. This will end a six-month stay at the ISS.

The [SpaceX Crew-1](#) mission is slated to launch no earlier than October 23, 2020. Following the successful DM-2 mission which was completed in August, the Crew-1 mission will send four astronauts to the International Space Station. Commander Michael Hopkins, Pilot Victor Glover, Mission Specialist

Shannon Walker and Soichi Noguchi of the Japan Aerospace Exploration Agency will make up the crew. They'll be on board for six months.

Boeing is making progress on its [CST-100 Starliner](#) spacecraft, which will carry astronauts to the International Space Station. Slated for a December blast-off, the [Orbital Flight Test 2](#) unmanned mission will lead the way to a manned Crew Flight Test mission in June 2021. Like SpaceX, Boeing is working towards being able to re-use various stages of rockets and spacecraft. Unlike SpaceX, the Boeing Starliner will be able to land on [solid ground](#) at one of five locations in the Western United States. Boeing previously flew an Orbital Flight Test 1 unmanned mission on December 21, 2019, but the mission missed its orbital insertion burn to put it into the correct orbit. The mission team decided to not try to dock with the ISS, but instead it was returned to Earth.



The Starliner capsule is secured NASA and Boeing crews after it returned from orbit to the White Sands Missile Range. It is slated to fly again, uncrewed, in December. NASA photo

NCSF September board meeting notes

By Mike Borchert

- Jeff Setzerr reported that NCRAL 2021 will be May 7 and 8 *if it happens*. It will take place on the St. Norbert college campus. Kress Inn will be the hotel of choice.
- There is a new Astronomical League [award program](#) that deals with library telescopes. Several members already have hours to be used. There is a discussion on the Astronomical League's [Facebook](#) page. See also [LibraryTelescope.org](#) or see the awards section of ALCOR.
- Joyce Jentges reports that the observatory is in good shape physically after stopping in and opening the door with a quick look. The observatory is still closed to the public as well as club members
- October 17 is the club's binocular party. Remember to socially distance and no sharing of binoculars.
- October's meeting will cover the app [Astrospheric](#). It is a free app and useful to anyone who looks up at the skies. Jeff Setzer will describe, instruct, and answer questions. It forecasts deals the weather, cloud cover, seeing conditions and more.
- If anyone has an idea for the board to discuss for the upcoming virtual Christmas party, please email them to the board or stop in on the club's Slack website and drop a note. Any pictures that may be used online for the virtual Christmas party, please consider uploading the electronic file.

Looking ahead

Binocular Star Party

October 17, 2020
Harrington Beach State Park
For NCSF members only, not a public event. Leave your scope at home, this one is for both your eyes.

NEAF

Northeast Astronomy Forum
April 10 and 11, 2021
The twice-canceled conference will try for the third time. Rockland Community College, Suffern, NY
<https://www.neafexpo.com>

NCRAL convention

May 7-8, 2021
St Norbert College Bemis Center, De Pere, Wis.
Hosted by the Neville Public Museum Astronomical Society
See the [NCRAL autumn 2020 newsletter](#), page 3

Pre-WOW

June 4 - 9 2021
Hartmann Creek State Park
Come and go anytime during those dates.

Wisconsin Observers Weekend

June 10 - 13, 2021
Hartmann Creek State Park
<http://www.new-star.org/index.php?itemid=82>



Nebraska Star Party

August 1 - 6, 2021
Merritt Reservoir Snake Campground
<https://www.nebraskastarparty.org/>

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NCSF is a member of the [North-Central Region of the Astronomical League](#).



NCSF supports the [International Dark Sky Association](#)

Links recommended by members:**Stargazing threats:**

A CBS Sunday Morning feature on stargazing and threats to the night sky from light pollution and satellites:

<https://www.cbsnews.com/video/a-closeup-view-of-the-night-sky/#x>

Arecibo quiz:

Learn about the Arecibo radio telescope (which has recently suffered major damage)

https://www.asme.org/topics-resources/content/quiz-what-do-you-know-about-the-arecibo-radio-telescope?utm_code=&cred_answ_id=

News story about the damage:

<https://spacenews.com/arecibo-radio-observatory-damaged/>

Lunar landers are back:

Mockup of Blue Origin's proposed lunar lander:

<https://www.space.com/blue-origin-crewed-moon-lander-mockup-nasa-tests.html>

Another lunar lander mockup, this one from Dynetics:

<https://spacenews.com/dynetics-to-use-in-space-refueling-for-nasa-lunar-lander/>

Clear skies, except smoke:

Take a look at this August 20 photo from NASA's Earth Observatory website:

<https://earthobservatory.nasa.gov/images/147151/wildfire-smoke-shrouds-the-us-west>

Smoke map:

Go to <https://fire.airnow.gov> and you'll see why those clear skies are not so clear lately. At this site, go to maps, then click on fire and smoke maps.

September General Meeting, from page 1

takedowns, and managing the stray light from monitors. But he also noted that a cell phone with a good camera and a telescope adapter can also accomplish the live viewing EAA experience.

Keefe's program led to a discussion by members of the new [Unistellar evScope](#), a self-contained EAA scope in a small, simple package. It gives the viewer a clear look at deep sky objects through its eyepiece, which focuses on an internal electronic screen. Also discussed after the presentation was the new [Celestron StarSense telescope](#), which uses a smartphone and software to sense the telescope's position. Assisted by prompts from the phone, the user hand-guides the low-tech mount to an object.

In the short business meeting, Gene DuPree reported \$11,853.34 in the NCSF account. - *Ernie Mastroianni*

SPECTRUM newsletter

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