

**Greg Smith – editor**

**Volume 26, No.6  
October 2020**

**Program: The Chicken Coop Observatory**

**Meeting: October 21, 2020  
Online at 7:00 p m**

## A View for a Family

This last week when Mars was getting near opposition, and its closest approach to Earth for the next 15 years, I had a beautiful clear night. I waited till Mars rose above the top of a large tree to my east and over the top of my garage to get a look at Mars. I had to set up in not my normal spot in my driveway to get a view at a somewhat decent hour. When finally I had Mars in my sights, I called to my my wife, to see if she wanted to see it. She did and came out. It was the first time she had seen Mars through a telescope. She admitted that it was a bit blurry, but could make out the different dark and light regions on its surface.

She then went inside and called my daughter and husband, from across the street to see if they wanted to see Mars too. They did. So she went to sit with the grand kids while they came over.

They arrived and had a good look too. Saw the dark and light shades. But, they were more interested in seeing Jupiter and Saturn that were visible in the southern sky. Jupiter was showing off its moons splendidly. My son-in-law who has a science degree had not seen Saturn before, was very exclamatory with his impression of seeing

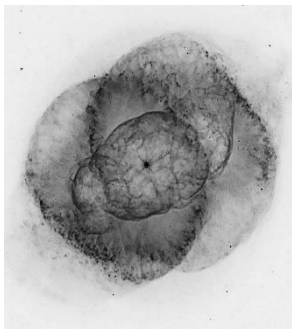
the rings. His statements were, “that’s amazing, so cool”, and then he asked what the star off to the side was. I told him that was the moon Titan. Here was something he had not thought could be seen with my scope, he thought it would take a larger one to see it. My daughter then went back to the eyepiece and took another look. She too was surprised that what she had assumed was just a star in the background was actually the large moon Titan.

Unfortunately, my oldest granddaughter was in bed and did not want to get up, though she had expressed interest in doing so earlier in the evening. Well, she can try next year when Jupiter and Saturn are even closer together in the autumn night sky.

It was a great evening for a family to get to see new things in the night sky.

A personal note: my fancy computerized telescopes electronics died. The company I bought it from has discontinued that scope and won’t repair it. They are working with me to swap it out for a similar scope that is not so highly automated.

**Every Day is a Star Filled Day,  
Every Night is a Starry Night**



## These alien planets may be more habitable for life than our own Earth

By [Charles Q. Choi](#)

On Earth, there is life virtually everywhere there is liquid water. As such, the hunt for extraterrestrial life has focused on so-called habitable or "Goldilocks" zones — areas around stars temperate enough for planets to possess liquid water on their surfaces.

Since Earth is the only inhabited world known, this planet is usually the focus of studies on habitability. However, scientists have reasoned that worlds other than Earth-like ones could offer conditions suitable for life to emerge and evolve. Such worlds might even prove "super-habitable," or have better chances at hosting life than Earth.

"We are so over-focused on finding a mirror image of Earth that we may overlook a planet that is even more well-suited for life," study lead author Dirk Schulze-Makuch, an astrobiologist at Washington State University in Pullman and the Technical University of Berlin, told Space.com.

To search for potentially super-habitable exoplanets, researchers investigated the Kepler Object of Interest Exoplanet Archive, focusing on 4,500 planetary systems that likely possessed rocky planets within their stars' habitable zones.

In addition to looking at planetary systems with yellow dwarf stars like our sun, the scientists also looked at orange dwarf stars, which are somewhat cooler, dimmer and less massive than our sun. Whereas our sun has a lifetime estimated at less than 10 billion years, orange dwarfs have lifetimes of 20 billion to 70 billion years. Since complex life took about 3.5 billion years to appear on Earth, the longer lifetimes of orange dwarfs could give planets within their habitable zones more time to develop life and accrue biodiversity. Orange dwarfs are also about 50% more frequent than yellow dwarfs in the Milky Way.

"Our sun is actually not the best kind of star for hosting a planet with lots of life on it," Schulze-Makuch said.

An older planet might give life more time to evolve. Earth is about 4.5 billion years old, so the researchers speculated the sweet spot for life is a planet that is between 5 billion to 8 billion years old.

The size and mass of a planet can also influence how well it can support life. A planet that is 10% wider than Earth would have more habitable land. One that is about 1.5 times Earth's mass would be expected to retain its interior heat longer, which in turn would help keep its core molten and its protective magnetic fields active. A heavier planet would also have stronger gravity to help retain its atmosphere over a longer span of time.

Worlds that are slightly warmer than Earth by about 8 degrees Fahrenheit (5 degrees Celsius) might be super-habitable, since they could have larger tropical zones that could be more benign for more biodiversity. However, warmer planets might also need more moisture since greater heat could expand deserts.

In addition, planets with the same amount of land area as Earth but broken up into smaller continents might be more habitable. When it comes to continents that are too large (such as Earth's past continent Gondwana about 500 million years ago), their centers are far from oceans, often rendering the interiors of large continents vast, inhospitable deserts. Moreover, Earth's shallow waters have a greater biodiversity than its deep oceans, so planets with shallower waters may be super-habitable.

### **Super-habitable haul.**

All in all, the scientists identified 24 potentially super-habitable planets. None of them met all the criteria the researchers drew up for super-habitable planets, but one did meet at least two — KOI 5715.01, a planet about 5.5 billion years old and 1.8 to 2.4 times Earth's diameter orbiting an orange dwarf about 2,965 light-years away. It might have an average surface temperature about 4.3 degrees F (2.4 degrees C) cooler than Earth, but if it has more greenhouse gases than Earth to trap heat, it might be super-habitable, they said.

Schulze-Makuch's favorite potentially super-habitable world from these 24 was KOI 5554.01, a world about 6.5 billion years old 0.72 to 1.29 times Earth's diameter orbiting a yellow dwarf about 700 light-years from Earth.

"I really liked the average surface temperature — about 27 degrees C [80 degrees F]," Schulze-Makuch said. "And it's probably about Earth's size, and a little bit older than Earth."

All 24 of these potentially super-habitable planets are more than 100 light-years from Earth. This makes them too far for NASA's Transiting Exoplanet Survey Satellite (TESS) spacecraft to capture high-quality images from to learn more about them.

Still, Schulze-Makuch noted that future spacecraft, such as NASA's James Webb Space Telescope, NASA's LUVIOR space observatory and the European Space Agency's PLATO space telescope, could shed light on these worlds.

"We caution that while we search for super-habitable planets, that doesn't mean that they necessarily contain life," Schulze-Makuch said. "A planet can be habitable or super-habitable but uninhabited."

The scientists detailed their findings online Sept. 18 in the journal *Astrobiology*.

## **Minutes of the September Meeting**

Ted Gruber, President, called the meeting to order. He introduced Steve Powell as tonight's speaker.

Steve Powell gave a presentation on the Lower Columbia College (LCC) Human Sundial. In May 2004, Margaret Miller proposed that FOG create a human sundial at LCC. The club voted to approve the project. By July 2005 LCC granted approval for the project.

By August 2005 Steve Powell and Mark Thorson had constructed a prototype with marked pieces of tape on Steve's basketball court. The first try was a fail, so they went back to the drawing board. Steve did some internet research and created a spreadsheet that calculated Cartesian coordinates for hour and date points of an analemmatic sundial. Using these coordinates, a new prototype was created on his basketball court. It was very accurate. He also used the Starry Night computer software to confirm that the design was accurate to within a few minutes. It was then that Steve and Margaret met at LCC to decide on the exact site. It was decided that an area next to where the Science Building was at the time, was the best location.

Labor Day 2005, Margaret, Steve, and Greg Smith meet at LCC at 12:45 pm to get started. Mark Thorson arrived a little later and helped paint the date and hour points of the sundial. Over the course of September 2005, the sundial was finished. It is still there and is repainted every few years. The last repaint was August 29, 2020. Steve Powell has estimated that he has spent over 100 hours in all stages of development and creation. Many additional hours have been contributed by Margaret Miller, Greg Smith, and Mark Thorson.

Margaret McCrea informed us about the North American Sundial Society (NASS). She said it is a very informative club and we should think about having our sundial registered with them. Mark Thorson agreed we should look into it.

Ted gave the Sky Report. The evening sky has Jupiter, Saturn, and Mars (which rises about 9 pm). The morning sky hosts Venus, which rises about 3:00 am. The Orionids Meteor Shower will be active Oct 2nd through Nov 7th, with the peak Oct 20-21st. The moon will not be a factor during the peak.

Election of officers took place tonight. The slate of officers is President, Ted Gruber; Vice President, Mark Thorson; Treasurer, Steve Powell; and Secretary, Greg Smith. The slate of officers were unanimously approved.

Steve Powell gave the Treasurer's Report. We are in the black and have 16 members paid so far. There are still a couple of members who said they were going to pay but have not done so yet. They will be contacted to see if anything has changed.

Ted updated us on Star Parties. The Star Party that took place in late August was great. Some people even found the Little Dumbbell Nebula. This upcoming weekend is supposed to be the last star party of the year at Mike's home. It will probably be cancelled due to smoke and/or rain. Mike said he is willing to do some ad-hoc star parties during the winter months. If it happens, and email will be sent to all club members.

Roy Gawlick gave us an update on the Solstice Lantern Walk at the Lake. It is scheduled for December 19th. He has talked with most sponsors who said they are willing to sponsor again this year as long as we can proceed due to COVID. Roy has emailed the City of Longview but has not heard back yet.

Margaret McCreia updated us on Richard Berry, who at one time was the editor of Astronomy Magazine. When he retired, he built a house in Lyons, OR. He also build an observatory on his property. Due to wildfires, he has lost his home, barn, and shed. Luckily, he did not lose his observatory. Over time, he will be looking for help rebuilding.

The next meeting will be October 21, 2020 by Zoom. Be watching for the email with the link.

Meeting adjourned.

### ☞ **October 2020 Meeting** ☞

**DATE:** **Wednesday October 21**  
**TIME** 7:00pm  
**PLACE:** Your Laptop / Tablet / or Smartphone.

A **Zoom** enabled meeting

**PROGRAM:** The Chicken Coop Observatory  
"And what it produces (sometimes eggs, sometimes poop)"

**Drinks :** Your Choice  
**Snacks :** Whatever is in your Cupboards

## Friends of Galileo Club Officers

PRESIDENT	Ted Gruber
VICE-PRESIDENT/ PROGRAM CHAIR	Mark Thorson
SECRETARY	Greg Smith
TREASURER	Steve Powell
WEBSITE	Ted Gruber
NEWSLETTER ED.	Greg Smith
ALCOR	Tom Meek

## Next Month's Newsletter Deadline

The deadline for items in next month's newsletter is:  
**Wednesday: seven days before next meeting.**

**Please feel free to send in your thoughts and experiences about your astronomical adventure.**

Submit your material by E-mail to: [gryth@msn.com](mailto:gryth@msn.com)

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