

Program – “Jupiter: Discoveries of Amazing Secrets” – Mark Thorson

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Greg Smith – editor.

**Meeting: Wednesday 7pm
September 21, 2022
R. A. Long Rm 130**

A slow Summers End

Except for the cloudy evenings, we’ve had a great run of weather. I’ve even had lists set up for exploring the night sky, unfortunately only to be disappointed.

Talk about disappointments. The failure of the Artemis launch was such a letdown. Then to have two such failures! Well, the Third time will be the charm. On the 27th (my birthday) they will try again. I do hope that I will get a good birthday present with a successful launch.

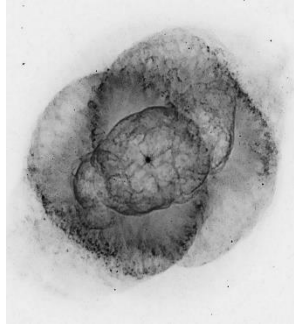
The James Webb Space Telescope definitely has not been a disappointment. It is hard to keep up with the new stuff it is producing. From finding Hydrogen and Oxygen (which means maybe water), in the atmosphere of an exoplanet to imaging an exoplanet. We live in great times of space exploration. A new attempt to land on the Moon is planned in two years. That will be exciting.

My daughter is just waiting for LEGO to put out the JWST set, she says I will get it as soon as it comes out. LEGO has not officially said anything about it, but it would be a big mistake if they don’t do it.

I was sorry that I did not make it to the Mt. St. Helens Star Party. My wife had planned a full family stay on the Oregon coast for that weekend. It turned out that, at the last minute none of the rest of the family was able to make it. But My wife and I went anyway. We were able to see whales and sea lions from our room widows and deck. The night sky was clear, and the stars were bright. The air conditions over the ocean were not right for the Green flash to appear on the horizon as the Sun set.

Maybe next time, we’ll take the grandkids only. A day on the beach with them will wear them out and us too. I can at least introduce them to the night sky with bright stars from a dark sky.

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



Mars Made into 3D



Astronauts could use Mars soil for 3D-printing on the Red Planet

Making things for Mars astronauts on-planet would be a boon for future human missions.

By [Stefanie Waldek](#)

Martian soil could serve as a 3D-printing material, researchers have shown, meaning it could be used to manufacture items on the Red Planet.

In a series of tests, Amit Bandyopadhyay, a professor at the Washington State University School of Mechanical and Materials Engineering, and his team used simulated crushed Martian regolith to demonstrate its capabilities as a 3D-printing material.

The results may be crucial for future crewed missions to Mars.

"In space, 3D printing is something that has to happen if we want to think of a manned mission, because we really cannot carry everything from here," Bandyopadhyay said in a statement. "And if we forgot something, we cannot come back to get it."

In addition to addressing logistical problems, Mars manufacturing would reduce costs. On the space shuttle, for example, every kilogram (2.2 pounds) of payload ferried to low Earth orbit cost NASA \$54,000.

The average distance between Earth and Mars is 140 million miles (225 million km), and the cost would be exponentially higher to get supplies to the Red Planet than to the International Space Station in low Earth orbit.

In most of the 3D-printing tests, the researchers blended different amounts of simulated Martian regolith with a titanium alloy. They also attempted to make a 3D-printing material out of pure simulated regolith.

They heated the dry ingredients to 3,632 degrees Fahrenheit (2,000 degrees Celsius) and then poured the melted material into a 3D printer to make the material into a variety of shapes and sizes. The researchers tested each object for strength and durability.

The team discovered that a mixture containing 5% regolith was harder and stronger than the titanium alloy alone. The pure regolith cracked as it cooled after printing, but the team suggested it could be used for radiation shield coating, which would not be affected by the cracks.

"This establishes that [3D printing with regolith] is possible, and maybe we should think in this direction because it's not just making plastic parts, which are weak, but metal-ceramic composite parts, which are strong and can be used for any kind of structural parts," Bandyopadhyay said in the statement.

The team's research was published July 24 in the International Journal of Applied Ceramic Technology

2022 Friends of Galileo Astronomy Viewing Schedule

September Moon: New=25, Full=10

- 1/2 Sidewalk Astronomy (Location TBD)
- 21 Club Meeting (In-Person/Zoom)
- 23/24 Club Star Party at Mike's
- 30 Club Star Party at Mike's

October Moon: New=25, Full= 9

- 1 Club Star Party at Mike's (if not held September 30)
- 19 Club Meeting (In-Person/Zoom)
- 21/22 Club Star Party @ Mike's

☞ September 2022 Meeting ☞

DATE: September 21, 2022

TIME: 8:00pm

PLACE: Hybrid in person / Zoom - originating from R,A.Long Rm 130

PROGRAM “Jupiter: Discoveries of Amazing Secrets”

Moon Phases

New: Sun. Sept 25th, **1st Qtr.:** Sun Oct 2nd **Full:** Sun Oct. 9th **3rd Qtr.:** Mon. Oct. 17th

End of twilight - when the stars start to come out.

Wed. Sept 21 7:41pm. Wed. Sept 28th 6:59pm Wed. Oct. 5th 7:14pm Wed. Oct. 19:48pm

The Star Report is posted on the clubs website: 1. It is listed in the blog portion of the website.

Minutes of the August FOG Meeting

Again, we met at Mikes house on the hill and had a somewhat short meeting. We had a good night of viewing; the smoke was not bad at all. Chatting about astronomy related topics is always fun and informative. Please make an effort to come, you will not regret it.

Friends of Galileo Club Officers

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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 adventures.

Submit your material by E-mail to: gryth@msn.com

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