Friends Of Galileo
ASTRONOMY CLUB

Greg Smith – editor

Volume 25, No.5
September 2019

Program: Dawn Nilson - Dark Matters
Importance of Dark Skies

Meeting: September 18 2019
Mark Morris LGIC

Mother Nature 3 – FOG 1

The Mt. St. Helens Star Party was very good, as long as it was daylight. Meaning, that the activities and presentations were great, and well attended; the planetarium was packed for every showing and talks were standing room only. But the weather was not so helpful. There was virtually no solar viewing as the clouds held the sun at bay. Early evening and till 10pm it rained off and on. It was not till midnight that a small hole opened in the clouds so that some stars were visible. While down on the valley floor it cleared up and had beautiful views of the stars.

None of the weather forecasts got even close to what happened up there. Weather on the mountain is so unpredictable.

The question now, is do we continue to put out the energy and time into something that is so iffy on the proper out come of the weather? The Pacific Northwest is known for its varied weather and the mountains are notorious for their changing conditions. We will have to discuss this with the Rose City Astronomers and the Mt. St. Helens Institute to see if we will continue to participate in this event.

IDA Speaker

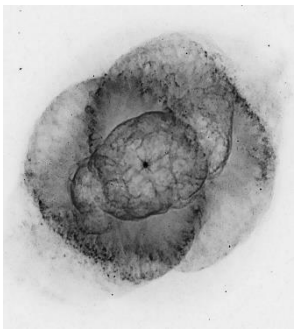
I heard Dawn Nilson's talk on Dark Matters at the Mt. St. Helens Star Party. It is a very interesting and compelling discussion on the reason why we need a dark night. It covers wildlife, personal safety, energy conservation, and the health benefits of sleeping in the dark. It is not just for viewing the night sky, and astronomical research.

I have been adapting my own home outside lighting to make the best use of IDA recommendations on shielding my lighting. One item I have done is to replace the white light bulb in my motion sensor driveway light with a red light bulb. It only comes on for a short while so if I accidently trip it when I'm using my telescope, it doesn't blind me and ruin my night vision. I still have one backyard light that I need to update; I'll be doing that shortly.

My front porch has down facing LED lights that don't blind passers-by. Part of the personal safety issue.

You really should come to FOG this month and hear this presentation, you may very well benefit from it.

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



Explosive Craters?

Some of Saturn Moon Titan's Methane Lakes May Sit in 'Explosion Craters'

By Mike Wall

Vaporized nitrogen may have been the bomb.

Some of the lakes on Saturn's huge moon Titan may sit in craters blasted out by liquid-nitrogen bombs, a new study suggests.

Titan, the second-largest moon in the solar system, is the only cosmic body beyond Earth known to host stable bodies of liquid on its surface. But Titan's lakes and seas are full of methane, not water. Indeed, the moon's weather system is hydrocarbon-based, with liquid ethane and methane raining from the skies and coursing through canyons to countless reservoirs. (Titan also probably has a subsurface ocean of liquid water, giving the moon two very different, potentially life-hosting environments.)

A leading theory of Titan-lake formation posits that many of these bodies were carved by liquid methane, which dissolved the moon's bedrock of water ice and organic compounds. This process is known to occur in places here on Earth where water eats through limestone substrate, forming "karstic lakes."

But some of the smaller lakes — ones measuring just tens of miles across — near Titan's north pole have steep sides with tall rims that reach high into the moon's sky, radar imagery by NASA's Cassini spacecraft has shown. That profile doesn't fit the karstic model, authors of the new study said.

"The rim goes up, and the karst process works in the opposite way," lead author Giuseppe Mitri, of Italy's G. d'Annunzio University, said in a statement.

"We were not finding any explanation that fit with a karstic lake basin," Mitri added. "In reality, the morphology was more consistent with an explosion crater, where the rim is formed by the ejected material from the crater interior. It's totally a different process."

Mitri and his colleagues may have figured out what this process is, they report in the new study, which was published today (Sept. 9) in the journal Nature Geoscience.

Though Titan is extremely chilly today, with average surface temperatures around minus 290 degrees Fahrenheit (minus 179 degrees Celsius), the moon has been even colder in the past.

Scientists think that the moon has gone through warming and cooling periods over the last billion years or so, as levels of atmospheric methane — a potent greenhouse gas — have waxed and waned. During Titan's "ice ages," nitrogen likely rained from the skies and collected in subsurface pools, study team members said.

This liquid nitrogen was a bomb just waiting to go off. And temperature increases could have lit the fuse, causing the nitrogen to vaporize, expanding quickly in a crater-gouging explosion, study team members said.

"These lakes with steep edges, ramparts and raised rims would be a signpost of periods in Titan's history when there was liquid nitrogen on the surface and in the crust," co-author Jonathan Lunine, of Cornell University in New York, said in the same statement.

Cassini studied Saturn and its many moons up close from 2004 through September 2017, when the low-on-fuel probe performed an intentional death dive into the ringed planet's thick atmosphere. The new study shows that discoveries will continue to flow from the mission, even though the spacecraft itself is gone, Cassini team members said.

"This is a completely different explanation for the steep rims around those small lakes, which has been a tremendous puzzle," Cassini Project Scientist Linda Spilker, of NASA's Jet Propulsion Laboratory in Pasadena, California, said in the same statement.

"As scientists continue to mine the treasure trove of Cassini data, we'll keep putting more and more pieces of the puzzle together," added Spilker, who wasn't part of the study team. "Over the next decades, we will come to understand the Saturn system better and better."

Minutes of the August Meeting

Since we did not have an official meeting last month due to the involvement with the Mt. St. Helens Institutes Sky and Star Party we will have a report of the star party at the next meeting.

☞ September 2019 Meeting ☜

DATE: **Wednesday September 18**

TIME 7:00 PM

PLACE: Mark Morris LGIC

PROGRAM: **Dark Matters**
Dawn Nilson
International Dark Sky Association
Representative

SNACKS: Carolyn Hail

DRINKS: ?

2019 FOG Activities and Viewing Schedule

SEP MOON: FULL=14, NEW=28

18 Club Meeting (MMHS LGIC)

27>28 Club Star Party (Mike's)

OCT MOON: FULL=13, NEW=27

4>11 Sidewalk Astronomy (Starbuck's, 808 OB Hwy)

16 Club Meeting (MMHS LGIC)

NOV MOON: FULL=12, NEW=26

11 Transit of Mercury (TBA) In progress at sunrise.

20 Club Meeting (MMHS LGIC)

28 Thanksgiving Day

DEC MOON: FULL=12, NEW=26

11>18 Annual Christmas Party (Location TBA)

21 Solstice Lantern Walk (Lake Sacajawea)

Friends of Galileo Club Officers Mark Thorson

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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 adventure.

Submit your material by E-mail to:

grlyth@msn.com

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