WEYMOUTH ASTRONOMY

Trips / Events

Ideas for trips and events always welcome!

events@weymouthastronomy.co.uk

- ***11 Apr BNSS—Dr Lilian Hobbs: How Astronomy has Changed***
- ***19 Apr CADAS—Bob Mizon: Eight great astronomers***
- ***2 May WAS—David Whitehouse—Journey to the Centre of the Earth***
- ***9 May BNSS—Mark Gibbons: Gravitational waves***
- ***17 May CADAS—Dan Oakley: Dark Skies: South Downs National Park and beyond***
- ***6 June WAS—David Boyd—Spectroscopy: What? How? And Why?***
- **21 June CADAS—Steve Tonkin: Ten ways the universe tries to kill you**

More events to come in 2017.

Programmes for many local Societies will be available in the near future. Check their websites for more details.

WAC Upcoming Events:

12 May— AGM—Binocular Astronomy-Stephen Tonkin

9 June—Ask the Panel

14 July—Strife among the canals– James Fradgley

11 Aug—Open evening at SACC

More to come in 2017!

Plans for informal viewing nights will take place after the monthly meetings, weather permitting.

Sky Watcher

Volume 11, Issue 11
7 April 2017

WAC News—

Caught your attention? Yes, beer AND astronomy! S&T has featured a super gift for the astronomer who has everything….**theUncommonGreen now produces a series of etched glassware. The Constellation** Glassware series features pints ($16), rocks ($14), and stemless wine glasses ($15) etched with the classical constellations of the Northern Hemisphere's winter or summer skies. Each is meticulously engraved with the familiar lines and names of the constellations and designed to never wear off. https://theuncommongreen.com/collections/constellation-glassware

Something to keep in mind for the next birthday!

Until next month ~SK

What It's Like on a TRAPPIST-1 Planet

By Marcus Woo

With seven Earth-sized planets that could harbor liquid water on their rocky, solid surfaces, the TRAPPIST-1 planetary system might feel familiar. Yet the system, recently studied by NASA's Spitzer Space Telescope, is unmistakably alien: compact enough to fit inside Mercury's orbit, and surrounds an ultra-cool dwarf star—not much bigger than Jupiter and much cooler than the sun.

If you stood on one of these worlds, the sky overhead would look quite different from our own. Depending on which planet you're on, the star would appear several times bigger than the sun. You would feel its warmth, but because it shines stronger in the infrared, it would appear disproportionately dim.

"It would be a sort of an orangish-salmon color—basically close to the color of a low-wattage light bulb," says Robert Hurt, a visualization scientist for Caltech/IPAC, a NASA partner. Due to the lack of blue light from the star, the sky would be bathed in a pastel, orange hue.

But that's only if you're on the light side of the planet. Because the worlds are so close to their star, they're tidally locked so that the same side faces the star at all times, like how the Man on the Moon always watches Earth. If you're on the planet's dark side, you'd be enveloped in perpetual darkness—maybe a good thing if you're an avid stargazer.

If you're on some of the farther planets, though, the dark side might be too cold to survive. But on some of the inner planets, the dark side may be the only comfortable place, as the light side might be inhospitably hot.

On any of the middle planets, the light side would offer a dramatic view of the inner planets as crescents, appearing even bigger than the moon on closest approach. The planets only take a few days to orbit TRAPPIST-1, so from most planets, you can enjoy eclipses multiple times a week (they'd be more like transits, though, since they wouldn't cover the whole star).

Looking away from the star on the dark side, you would see the outer-most planets in their full illuminated glory. They would be so close—only a few times the Earth-moon distance—that you could see continents, clouds, and other surface features.

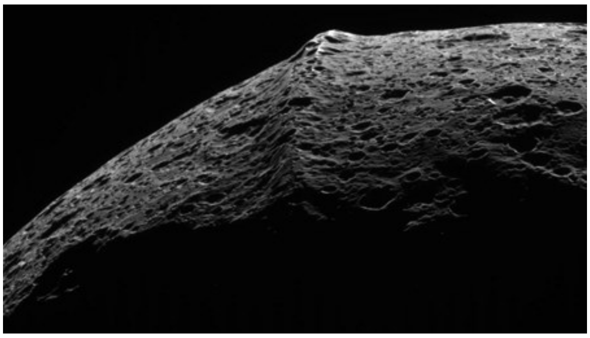
The constellations in the background would appear as if someone had bumped into them, jostling the stars—a perspective skewed by the 40

This artist's concept allows us to imagine what it would be like to stand on the surface of the exoplanet TRAPPIST-1f, located in the TRAPPIST-1 system in the constellation Aquarius. Credit: NASA/JPL-Caltech/T. Pyle (IPAC)

TRAPPIST (*continued*)

-light-years between TRAPPIST-1 and Earth. Orion's belt is no longer aligned. One of his shoulders is lowered. And, with the help of binoculars, you might even spot the sun as an inconspicuous yellow star: far, faint, but familiar. Want to teach kids about exoplanets? Go to the NASA Space Place and see our video called, "Searching for other planets like ours": https://spaceplace.nasa.gov/exoplanet-snap/

Iapetus's Ridge: The Result of Many Small Impacts? By: JoAnna Wendel



A ridge around Saturn's third-largest moon has scientists scratching their heads. Pan isn't the only Saturnian moon with a ridge. Before scientists even spotted Pan's tutu-shaped equatorial fringe, they knew about the one on Iapetus, Saturn's third-largest moon.

With a diameter of 1400 kilometers, Iapetus looks like any old, almost spherically shaped moon made of rock and ice—except for the seamlike ridge around its slightly bulging middle. Unlike Pan's ridge, Iapetus's ridge may not call to mind images of pasta or meat-filled delicacies. But scientists are just as intrigued because they have no idea how it formed.

The 1300-kilometer-long ridge circles almost the entirety of Iapetus's equator.In 2004, NASA's Cassini spacecraft revealed Iapetus's ridge to be some 20 kilometers high (that's more than two Mount Everests on something about half the size of our Moon) and 15 kilometers wide in some places. The 1300-kilometer-long ridge circles almost the entirety of Iapetus's equator, and huge mountains stand in spaces where the ridge breaks up. "It's something that we hadn't seen anywhere else in the solar system," at least before Pan, said Angela Stickle, a planetary scientist at Johns Hopkins University's Applied Physics Laboratory in Laurel, Md.

Although Pan's ridge formation is fairly straightforward—the moon has slowly siphoned off Saturnian ring material for many years—the ridge on Iapetus offers no obvious origin story. However, Stickle, who studies impact dynamics throughout the solar system, and her colleagues have come up with one scenario. She thinks that millions of small impacts could explain the ridge. Stickle presented the research on 21 March at the 48th Lunar and Planetary Science Conference in The Woodlands, Texas.

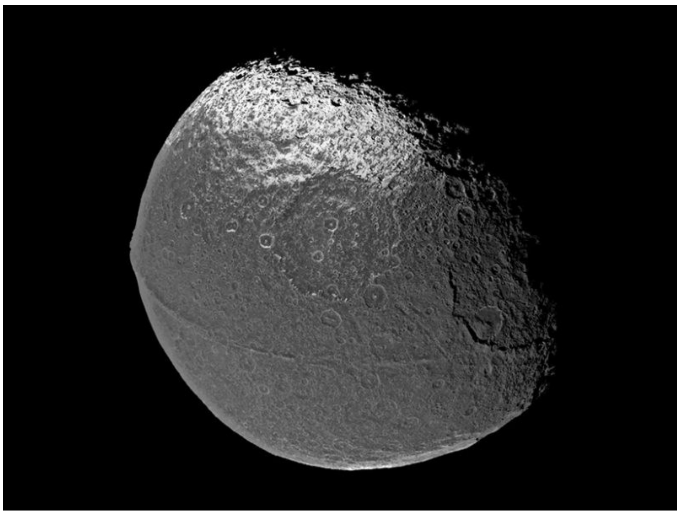
Building a Ridge from the Outside In

Impacts create weird features on bodies all over the solar system, including rings of mountains, huge basins, and central peaks. An impact is even thought to be responsible for the formation of our own Moon. So it's not unreasonable to think that an impact could have played a role in creating Iapetus's ridge, Stickle said. Iapetus is covered in large craters, so scientists know that at one point, impacts were common.

To explain Iapetus's unique ridge, Stickle and her colleagues suggest a double whammy: A long time ago, something slammed into Iapetus, launching enough material upward to form a ring of debris that circled space around the planet, like a mini Saturn ring. Over time, the light pull of Iapetus's weak gravity caused the debris to fall back onto the moon in tens of millions of impacts that piled up material into an immense ridge.

The researchers tested the second part of this hypothesis—the many impacts from a debris disk—using an impact model. They set parameters such as size of impactors (in this case, between 1-meter- and 1-kilometer-sized chunks), the speed of impact (400 meters per second), and a low-angle entry.

Most people think of impacts as coming from straight above, which allows the impactor to focus all its energy into forming a massive crater and hurling debris into the sky. However, impacts from a disk of debris usually impact at a low, "grazing angle," Stickle said. This is because as the orbit of the debris disk decays, it sends chunks of ice and rock swirling into Iapetus like marbles circling a drain. These bits of debris would skim the surface as they descended.



A grazing impact means that the chunk's momentum, instead of being transferred immediately into the ground, would keep propelling the chunk forward. When a rock slams into a body at a low angle, its top "decapitates," Stickle said, and the momentum in the sheared-off piece sends it speeding away, scouring the surface as it slides. Because the disk's material was likely orbiting in a rough plane, over time these decapitated bits would have run into each other, Stickle suggests, creating a traffic jam of meteorite heads. Enough pieces could have built up the near-complete ridge seen on Iapetus today, Stickle said.

More can be found at:

https://eos.org/articles/iapetuss-ridge-the-result-of-many-small-impacts?utm_source=eos&utm_medium=email&utm_campaign=EosBuzz033117