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Through partnerships in storytelling, we can slowly build a culture that values science, Rather explained. And as the founder and CEO of News and Guts, an independent news production company, he wants to do his part to help shape that culture. “I may have only a little bit to offer, but whatever I have to offer, why, I want to try,” he later told *Eos*.

Fear Not

Getting the public engaged in science is not an onerous task, Rather noted in his address. He pointed out that millions observed the 2017 solar eclipse and that many people visit science museums across the country every year. The public, he said, is knowledge hungry.

When AGU president Eric Davidson asked Rather his advice for scientists who are reluctant to speak to the media for fear of being misrepresented, Rather’s response was simple: “Fear not.”

“This is not worthy of some of the best minds in the country to talk about risk to say, ‘I’m afraid to do something,’” he continued. “No. The best of science is not afraid to do anything.”

When speaking with the media, “Is there a risk sometimes? Are you going to get burned sometimes?” Rather asked. “Yeah, probably, unless you’re very lucky and very careful.”

But the pursuit of science—and for that matter, life itself—is about taking risks, he explained. “So don’t come into science and science storytelling thinking, ‘What might happen?’ Have some courage; take the risk.”

Shifting the Culture

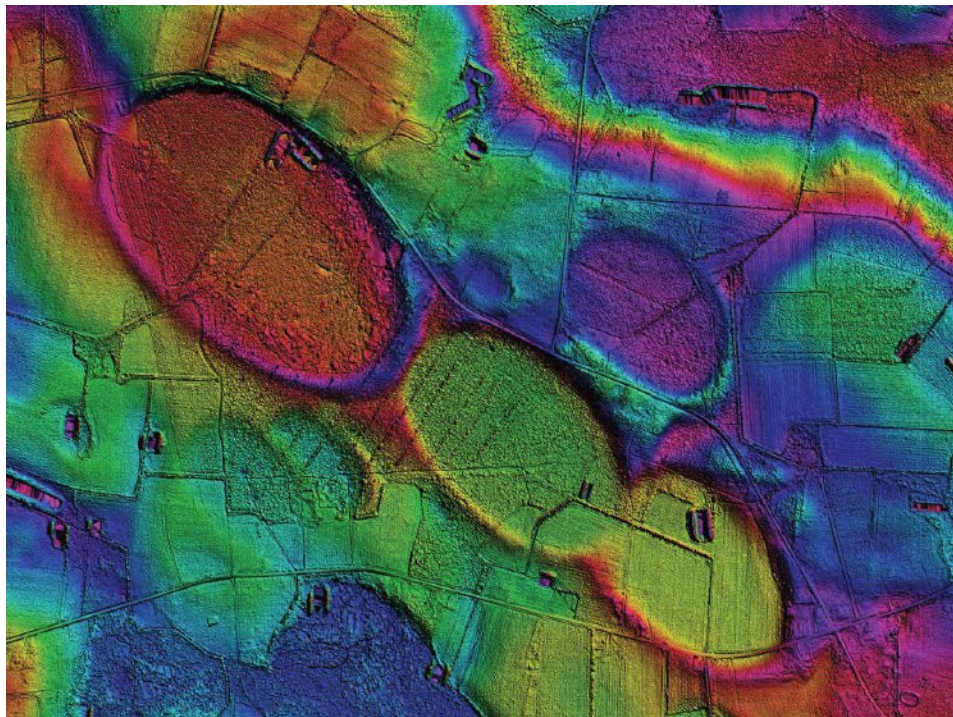
To change the paradigm around science communication, Rather urges small, individual acts from scientists—engage with local schools, or even just talk to a relative about your research, he said. Scientific “leaders can’t lead if they don’t have those who can amplify their calls,” he explained.

These actions may seem small and insignificant, but thousands and thousands compounding on each other will have a large effect. “I’ve covered enough social movements to know that big change begins with small commitments and engagement,” Rather said.

The full video of Dan Rather’s 2017 Presidential Forum lecture can be viewed at <http://bit.ly/drather-video>.

By **JoAnna Wendel** (@JoAnnaScience) and **Randy Showstack** (@RandyShowstack), Staff Writers; and **Mohi Kumar**, Scientific Content Editor

Four Planetary Landscapes That Scientists Can’t Explain



A lidar image of mysterious features on Earth called Carolina bays. These depressions dot much of the East Coast of the United States, they’re all oriented in the same direction, and scientists still don’t know how they formed. This image was taken in South Carolina, showing four Carolina bays, each between half a kilometer and 1 kilometer long. The image uses hue-saturation-value mapping to highlight elevation changes in the bays, from the ridges to the shallow depressions, revealing features that often can get overlooked from a ground-level view. The technique creates a continuum of colors across the rainbow, repeating the rainbow several times, to capture extremely fine details as elevation changes. Credit: Michael Davies

Take a tour of the solar system, and you’ll find myriad mysteries. How old are Saturn’s rings? What carved out Mercury’s hollows? What created Iapetus’s weird ridge?

At the 2017 AGU Fall Meeting in New Orleans, La., several scientists dedicated a poster session to just a pinch of solar system puzzles—including strange landscapes on our own planet.

“We thought it would be interesting to create a risk-free session” where scientists could “come with a totally off-the-wall idea and everyone [would] want to chat about it,” said Angela Stickle, a planetary scientist at the Johns Hopkins University Applied Physics Laboratory in Laurel, Md., and coconvener of the session.

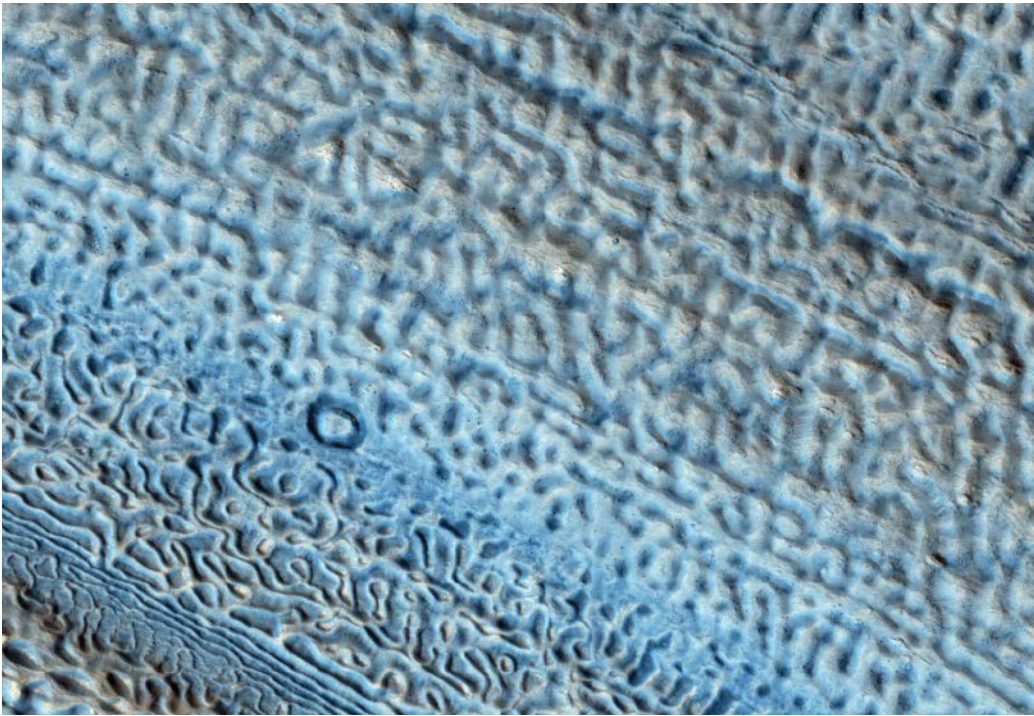
Perhaps some new collaborations will come out of the discussion, Stickle added. Maybe an Earth scientist has seen an image of a strange

feature on Mars and thought, “Wait, I’ve seen something like that on Earth!” and a new partnership will flourish.

Here are four of these mysterious terrains, along with possible explanations for them. For more of the solar system’s wacky, unexplained morphology, browse abstracts from the meeting’s poster session “If You See Something, Say Something: Exploring the Weird and Wonderful Features of the Solar System Posters” (P11A, <http://bit.ly/Mystery-Terrains>).

Brainy Mars?

One curious landscape spotted on Mars is a vast expanse known as the “brain terrain.” Scientists spotted the landscape in 2013 as they began to study Arcadia Planitia, a vast, smooth plain in Mars’s northern midlatitudes. Some scientists posit that the roughly 10-meter-wide dark troughs are places



NASA's Mars Reconnaissance Orbiter snapped this image of Mars's so-called brain terrain from several hundred kilometers away. Scientists estimate that the dark troughs are about 10 meters wide. Credit: NASA/JPL-Caltech/University of Arizona

where ice has been lost to sublimation—the process by which solid ice skips the liquid stage and just evaporates—while the bright spots still contain ice, said Nathan Williams, a planetary scientist at NASA's Jet Propulsion Laboratory in Pasadena, Calif., and a poster presenter.

If this explanation is true, more questions abound. “How old is the ice?” Williams wondered. “What implications does that have on the climate history of Mars?”

Most important of all, “in the future, could ice from the brain terrain be used as an in situ resource for drinking, fuel, and/or agriculture?” Williams asked.

Willy Wonka and the Taffy Factory

Meanwhile, half a planet away in the southern midlatitudes lies Mars's taffy pull ter-

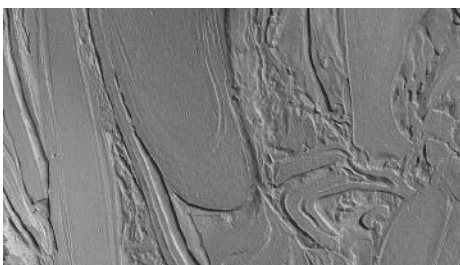


Image of the mysterious taffy pull terrain taken by the Mars Global Surveyor orbiter. The image covers an area 3 kilometers across. Credit: NASA/JPL

rain, or simply “taffy terrain,” which looks like a swirling mass of the gooey candy trapped in time. Scientists found the terrain in the basin of a 2,300-kilometer-wide impact crater called Hellas Planitia and nowhere else.

“The taffy terrain bears some resemblance to submarine salt domes in the Gulf of Mexico, glacial deposits with mixed ash in Iceland, or chalk formations in Egypt's White desert,” Laura Kerber, a planetary scientist at the Jet Propulsion Laboratory, wrote in her poster abstract.

However, scientists have “never seen anything like it, and it's only on one place on Mars, so something weird is going on there,” said Tanya Harrison, a planetary scientist at Arizona State University at Tempe who was not involved in this particular poster.

The leading theory behind the taffy terrain's origins involves landscapes containing different types of rock—some easy to erode, some harder to erode. As time passes, more easily eroded rock moves away, leaving behind the weird, flowlike pattern on the harder rocks, Harrison explained.

Carolina Bays

Our own blue planet isn't lacking mysterious terrains. On the United States' East Coast, for example, stretching from New

Jersey to Florida, hundreds of unexplained depressions pock the landscape. These depressions, which range in length from 180 meters to around 20 kilometers, are the Carolina bays—so named because a large cluster is found in the Carolinas. All of them are aligned northwest to southeast, and no one has a solid explanation for how they formed.

“Tens of thousands of these landforms [exist] around and amongst millions of people, and yet no serious geological undertakings have been made in the past 40 years to investigate them,” said Michael Davias, a researcher at Cintos Research, an independent group of citizen scientists, and a presenter of a poster.

Theories of formation range from swarms of meteorites to wind, Davias said. Scientists seem to be divided into two camps: those who think some external force like impacts created the depressions and those who think the depressions formed from wind- or water-related erosion.

Bright Streaks

One face of Saturn's icy moon Dione is crisscrossed with unexplainable bright streaks. The Cassini spacecraft first showed scientists these streaks on Dione, as well as on the larger moon Rhea. Scientists have yet to figure out their origins.

When a mystery like these bright streaks pops up, “it makes you rise to the challenge” to get to the bottom of it, said Emily Martin, a planetary scientist at the National Air and Space Museum in Washington, D. C., and a presenter of a poster on the topic.

The leading theory behind the bright streaks involves tectonics, but not the kind of tectonics we're familiar with on Earth, Martin pointed out. No other plate tectonics like Earth's exists in the solar system, so the cracks and faults on Dione and Rhea result from the pushing and pulling of gravity as the moons orbit Saturn.

However, Martin is currently exploring an alternative theory involving impacts: Maybe an impact's scour created the bright streaks, or perhaps a cloud of orbiting debris rained down on the moons.

By **JoAnna Wendel** (@JoAnnaScience), Staff Writer