

Tuesday, October 6, 2026

' 2026 Morning Update • Morning Science Briefing • Tue, 06 Oct 2026 12:02:25 GMT • 8:46

Maya: Good morning, and welcome to the Morning Science Briefing. I'm Maya, he's Devon, and it is Tuesday, October sixth, twenty twenty six. Today we have this year's Nobel Prize in Physics, a planet apparently reborn from the ashes of its own dead star, and a star caught slowly snacking on its companion. Plus, what the Perseverance rover found about ancient water on Mars, and the space weather check. Let's get into it.

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Devon: The biggest science story of the morning broke just hours ago in Stockholm. The twenty twenty six Nobel Prize in Physics has been awarded to one man, for opening a brand new window on the universe with the strangest messenger particle we know.

Maya: The laureate is Francis Halzen, eighty two years old, born in Belgium, and a professor at the University of Wisconsin Madison. The official citation is for decisive contributions to the IceCube Neutrino Observatory, and the discovery of high energy neutrinos of astrophysical origin. In plain language, he caught ghost particles from deep space.

Devon: Neutrinos are sometimes called ghost particles because they pass through almost everything. Trillions of them stream through your body every second, and you never notice. They are nearly impossible to catch, but they have one superpower. Unlike light, they travel in a straight line from the most violent places in the universe, completely undisturbed.

Maya: And Halzen had the wild idea. Back in nineteen eighty eight, he proposed using the Antarctic ice itself as a detector. His team, eventually more than four hundred fifty people from fifty eight institutions in fourteen countries, built the IceCube Neutrino Observatory at the South Pole, with thousands of light sensors buried about two kilometers deep in the ice. When a high energy neutrino collides with the ice, it produces a flash of blue light, and those sensors catch it.

Devon: It worked. IceCube proved that high energy neutrinos arrive from beyond our galaxy, giving astronomy a third messenger, after light and gravitational waves. This is the first time anyone has won the Nobel Prize for neutrino astronomy.

Maya: The Royal Swedish Academy of Sciences said the prize money this year is twelve million Swedish crowns, about one point two million dollars, and as the sole laureate, Halzen takes the whole thing. Yesterday's Medicine prize was split among three people. And the week continues. Chemistry tomorrow, Literature Thursday, the Peace Prize Friday, and Economics next Monday.

Devon: From ghost particles to a ghost of a solar system. Astronomers think they have found the first ever planet that formed from the ashes of its own dead star.

Maya: This is a study published Monday in the journal Nature Astronomy, led by Jamie

database and matched them to niobium. That is the first time niobium has ever been found in a white dwarf, and it tells a strange story. Niobium is a product of the star's own death throes, so the white dwarf appears to be swallowing the remains of a planet built from its own ashes.

Maya: And there is a companion. Data from NASA's T E S S telescope shows a faint signal repeating every four point four days, consistent with a Jupiter sized gas giant in close orbit. The idea is that the planet's atmosphere is slowly evaporating, and that material is raining back down onto the white dwarf. If confirmed, it is the first second generation planet ever seen, a world born not from a star's birth cloud, but from its death.

Devon: Speaking of cosmic eating, a team at M I T has caught a star doing something nobody has ever seen. Slowly snacking on its companion, bite by bite, for eons.

Maya: The system is about three hundred light years away in the Milky Way. A red dwarf is gradually pulling material from an orbiting brown dwarf, and the two swing around each other every eighty six point six five minutes. Material from the brown dwarf spills onto its companion, heating a large hot spot where it lands.

Devon: The lead researcher, M I T assistant professor of physics Kevin Burdge, says this is a middle path nobody had observed before. Some stars end up in stable orbits with their companions. Others swallow their companions whole, which is what our own Sun will eventually do to Earth. But here, the star can gradually eat its companion for hundreds of thousands, even billions, of years.

Maya: The paper just appeared in Nature Astronomy, and it fills a gap in how we understand stellar evolution. Slow stellar cannibalism, the longest meal in the universe.

Devon: Now to Mars, where the Perseverance rover has found that the Red Planet's water story was far messier than anyone expected.

Maya: This is from a study published last month in the journal Communications Earth and Environment, led by Candice Bedford of Purdue University. The team used Perseverance's SuperCam, a laser that zaps rocks from about twenty one feet away, to study more than one hundred eighty five bedrock targets across the Margin Unit in Jezero Crater, spanning about eight hundred seventy feet of elevation.

Devon: And they found not one, but at least three separate water episodes. First, carbon dioxide rich groundwater reacted with olivine, an iron and magnesium rich rock, forming carbonate in cracks that still show up as raised ridges. Second, lake connected water left behind extra silica below the old waterline. Third, later heated underground water carved veins about ten inches long of calcium sulfate and fluorite.

Maya: Why does it matter? Jezero Crater sits in one of the largest carbonate exposures on Mars, and on Earth, carbonate and silica are some of the best preservers of ancient microbes. Every new chapter in Mars' water history is a new chapter in the question of whether life ever started there.

the real danger spreads.

Devon: Working at the Brookhaven National Laboratory's space radiation lab, they exposed human blood vessel cells to iron fifty six ions, then watched what happened to neighboring cells that were never touched. The irradiated cells released a chemical signal, a protein called T N F alpha, which washed over the neighbors and switched on a master control called N F kappa B. The neighbors then showed spikes of free radicals, broken DNA strands, and switched on anti death genes, essentially disabling the cell's normal self destruct when something goes wrong.

Maya: The team then implanted those bystander cells into mice, and they grew substantial tumors. And there is a human echo. Blood and tissue data from the Inspiration four astronauts, the private SpaceX crew that orbited Earth in twenty twenty one, showed the same T N F alpha spikes and the same heightened anti death activity.

Devon: The good news is the chain has weak links. Blocking the T N F alpha receptor and halting the N F kappa B activation broke the cascade in the lab. The team suggests layered defenses, better shielding like water walls and hydrogen rich plastics, plus future drugs that interrupt the signal. The study is published in the journal Space Science and Technology.

Maya: Now the space weather check, from Noah's Space Weather Prediction Center.

Devon: Much quieter than yesterday. The past day's peak was G one minor storm level, with kay pee reaching five, driven by that fast stream of solar wind from a coronal hole. But the stream is fading, and Noah says no G one or greater storms are expected through Thursday, with the strongest expected reading around kay pee four, which is below storm level. Their message this morning, no space weather storms are predicted for the next twenty four hours.

Maya: There is a slight chance of R one to R two radio blackouts, about fifteen percent per day through Thursday. Solar radiation stays below storm thresholds.

Devon: And the aurora outlook for tonight, back to background. With kay pee forecast around two to three, auroras should be visible only at high latitudes, far north. No mid latitude show tonight, and definitely nothing for us in the Bay Area. That's your science morning. I'm Maya.

Devon: And I'm Devon. Enjoy your Tuesday, and we'll see you tomorrow.