

Friday, October 2, 2026

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Maya: Good morning, and welcome to the Morning Science Briefing for Friday, October second, twenty twenty-six. I'm Maya.

Devon: And I'm Devon. Four new stories today, plus a space weather update with actual action in it. The sun has something headed our way.

Maya: Starting with the cosmos. Astronomers have found the lightest pair of neutron stars ever seen orbiting each other.

Devon: It's called P S R J eighteen fifty-six minus zero zero thirty-nine, discovered with China's giant FAST radio telescope. The two dead stars circle each other once every two point three six hours, and together they weigh just two point four nine times the mass of our sun.

Maya: And because they sit so close together, Einstein's general relativity is on full display. Over five years of observations, the team watched the orbit shrink exactly the way relativity predicts. They measured the drift of the orbit's closest point, and even caught the tiny Einstein delay in the pulsar's pulses.

Devon: The study is in Physical Review Letters, and it says the two stars will merge in about eighty-two million years. Because the pair is so light, that merger will probably make one giant neutron star instead of a black hole, which would teach us a lot about the densest matter in the universe.

Maya: Now, from space to the body. A small protein called p eleven may be a hidden amplifier for many of our most druggable receptors.

Devon: Researchers at Karolinska Institutet in Sweden screened two hundred eleven human G protein-coupled receptors. Those are the receptors that about one third of all approved medicines act on. Things like painkillers, blood pressure drugs, and antidepressants.

Maya: They found about two dozen receptors that interact with p eleven, and the protein seems to work like a volume knob. It preferentially latches onto receptors when they're activated, boosting the cell's response.

Devon: They dug deepest into one called PAR two, which is involved in inflammation and pain. In mice missing p eleven, the inflammatory response was weaker. The work is in Science Advances, and the long-term idea is drugs that fine-tune this amplifier, perhaps turning down chronic pain or inflammation more precisely.

Maya: Next, a demotion that's actually a promotion. A famous Scottish fossil once billed as the world's oldest reptile just lost its crown.

Devon: Lizzie, that's *Westlothiana lizziae*, a three hundred forty-five million year old fossil from Scotland. New synchrotron X-ray scans revealed hidden gills and fish-like teeth inside it, and the verdict is that it's an aquatic stem tetrapod, not a reptile at all.

Maya: The study in Nature says the big surprise is that reptile-like traits, things like

Devon: The team at the National University of Singapore trapped a single ion of lutetium, one hundred seventy-six, and measured its ticking to nineteen decimal places. The uncertainty is one in ten to the nineteenth, the lowest ever for an optical atomic clock.

Maya: And they didn't just trust one clock. They built two and compared them for two hundred hours. The two clocks agreed to five point seven in ten to the nineteenth, the most precise clock comparison ever made.

Devon: The Nature paper says lutetium is unusually insensitive to temperature and magnetic fields, so the clock works at room temperature. Clocks this good could sense gravitational changes across height differences of just a few millimeters, and they're in the running to help redefine the second after twenty thirty.

Maya: Now, space weather. Noah's Space Weather Prediction Center has issued a G one, minor geomagnetic storm watch for today.

Devon: The trigger was a big filament eruption and coronal mass ejection on September twenty-eighth. It's expected to deliver a glancing blow to Earth's magnetic field later today, with the peak between eight and eleven this morning Pacific time.

Maya: What does G one mean for us? Minor impacts. Aurora could dip into the northern tier of the United States, think northern Michigan and Maine, after dark. But not here in California. The Bay Area is far too far south for this one.

Devon: Noah also says weak power grid fluctuations are possible at high latitudes, with slight chances of satellite and radio hiccups. The solar wind speeds pick up again this weekend, and a second weak glancing blow from a C eight point six flare's ejection may arrive on October fourth.

Maya: So watch the night sky if you're up north, but don't change your plans down here. That's your Morning Science Briefing for Friday, October second. I'm Maya.

Devon: And I'm Devon. We'll be back tomorrow with more science. Have a great Friday.