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SOLAR SYSTEM

Escapade Mission Launches for Mars

A SMALL BUT UNIQUE mission launched on November 13th on Blue Origin's New Glenn rocket. The pair of small satellites, collectively named the Escape and Plasma Acceleration and Dynamics Explorers (Escapade), will reach the Red Planet in late 2027.

The spacecraft will study the interactions between the solar wind and the magnetic field and upper atmosphere of Mars from a stereo perspective.

"We know the magnetosphere changes on minute time scales," says principal investigator Robert Lillis (University of California, Berkeley). "Both spacecraft will be following each other in the same orbit, between two and 30 minutes apart, so we can actually

observe the changes in Mars's highly dynamic space environment."

Escapade is the fourth mission for NASA's Small Innovative Missions for Planetary Exploration (SIMPLEX) program, which to date has included Q-PACE, LunaH-Map, and Lunar Trailblazer — all of which were unsuccessful (*S&T*: Jan. 2026, p. 34).

Escapade took off outside the usual Mars launch window, which comes several months prior to the planet's opposition. Due to delays in the New Glenn rocket's development, the spacecraft instead launched 10 months *after* opposition. It will head to the L₂ Lagrange point, 1.5 million kilometers (930,000 miles) from Earth in the anti-sunward direction, loiter in a halo orbit, and monitor space weather while it waits for the Mars transfer window that opens later this year.



▲ The Escapade mission launched successfully on November 13th on Blue Origin's New Glenn rocket.

Watch for the maneuver in November that will take Escapade swinging past Earth and on to Mars.

■ DAVID DICKINSON

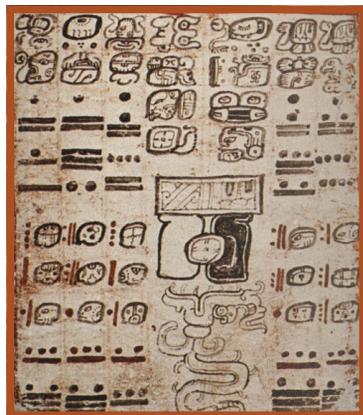
ASTRONOMY & SOCIETY

Maya 260-day Calendar Key to Solar Eclipse Predictions

THE MAYA 260-DAY "ritual calendar" provides the key to understanding the culture's solar-eclipse predictions, a new study has found.

The ancient Maya used sophisticated mechanisms to predict eclipses that we don't fully understand today. Among the few records left to us is an eclipse table that spans eight pages of a hieroglyphic book known as the Dresden Codex. Researchers have devoted years to teasing out the eclipse table's origins.

By comparing the table to 145 solar eclipses visible in the Maya area between AD 350 and 1150, John Justeson (University at Albany) and Justin Lowry (SUNY Plattsburgh) have developed new



► The glyphs at center bottom refer to a solar eclipse: The serpent is poised to swallow the Sun, thereby plunging the world into darkness.

insights into the table's evolution, published in the October 22nd *Science Advances*.

The eclipse table pinpoints celestial and seasonal events within interlocking calendrical cycles of 260 and 365 days. Those cycles are anchored in linear time through the Long Count calendar.

Justeson and Lowry conclude that the original function of the table was to record lunar months. By making and documenting observations over many generations, Maya calendar specialists, known as *daykeepers*, found that 405 successive new Moons were equivalent to 46 cycles of 260 days. Knowing this, they could predict the dates of full and

new Moons during that whole 11,960-day period.

Only later was the table repurposed for eclipses, when daykeepers noticed a striking pattern: Solar eclipses in their lunar tables of 405 months tended to recur on the same day in the 260-day calendar. Justeson and Lowry

propose that the final version of the Dresden table records eclipse dates over a 32¾-year period starting around AD 1100. The table would then have been restarted.

But there would eventually have been slippage between the predicted and actual eclipse dates, which the daykeepers knew. One of the contributions of the new study is the recognition of two specific points in the table that the daykeepers would have used for reentry to maintain its accuracy.

Specialists welcome the study's insights, though some suggest further evaluation is needed in light of models previously proposed for dating and recycling the table.

Cultural astronomer Anthony Aveni (Colgate University) notes that naked-eye astronomy around the world advanced by way of repeated observations and long-term time averaging. But nowhere else did people use the 260-day period for eclipse prediction. "Culture," Aveni remarks, "recognizes different aspects of nature."

■ GABRIELLE VAIL

Read more details about Maya eclipse predictions at skyandtelescope.org/MayaEclipses.