

New Scientist

WEEKLY December 3-9, 2022

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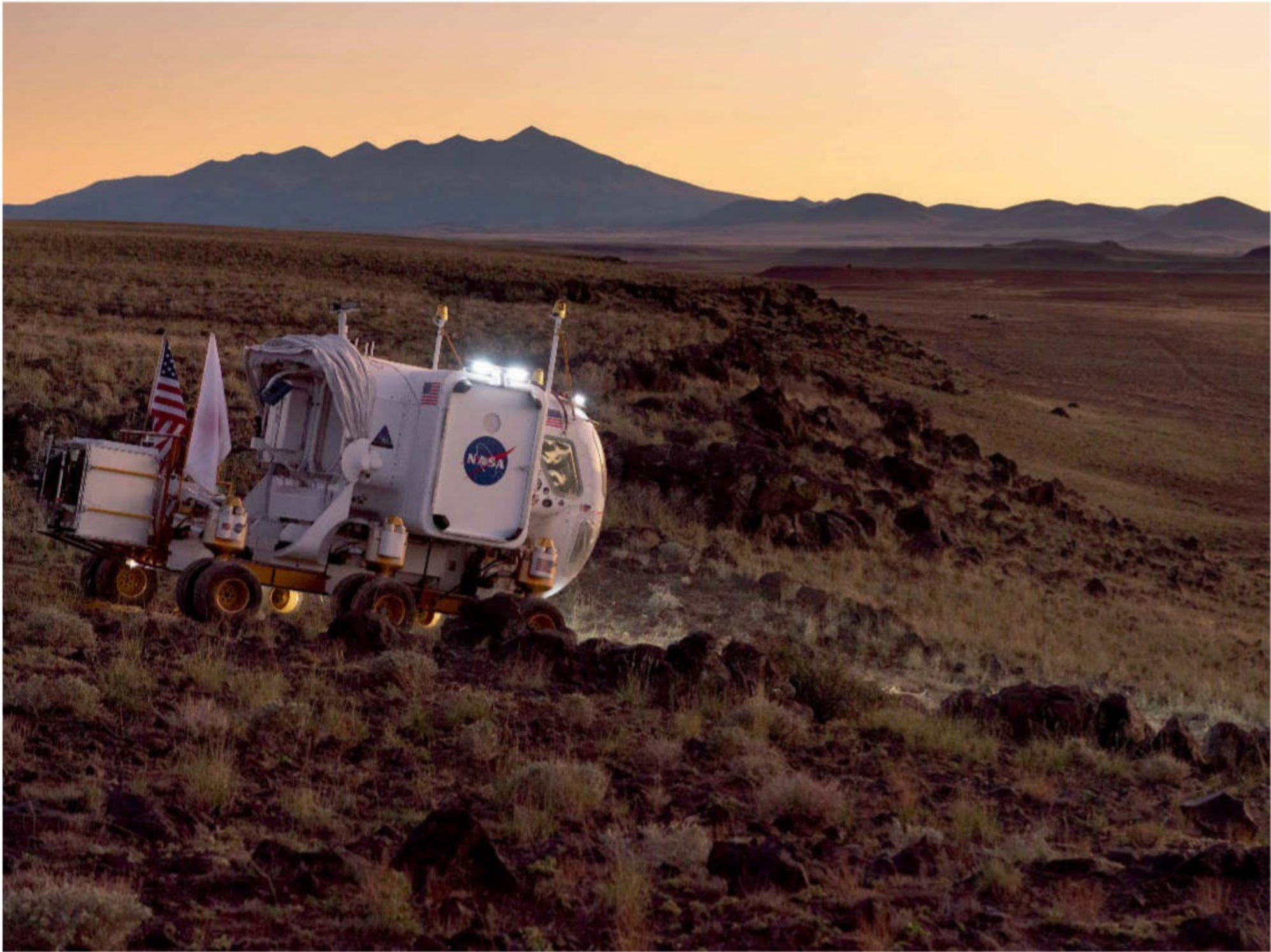
JAPAN KICKS OFF
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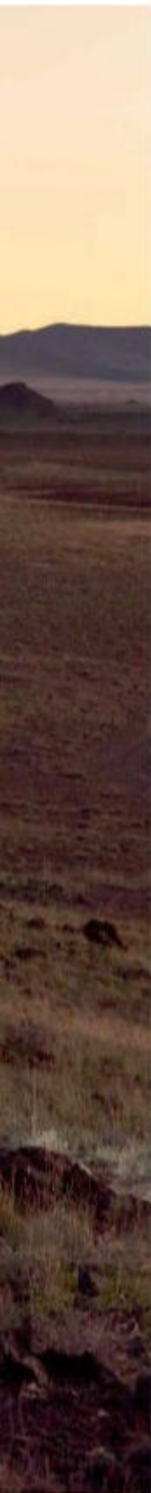
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Dress rehearsal



Photographer **Bill Stafford,**
NASA – Johnson Space Center

DEEP in the Arizona desert, astronauts are learning how to walk on the moon.

On 16 November, an uncrewed SLS rocket launched to lunar orbit, the first of many missions in NASA's Artemis programme. Also undertaken were two Earth-based operations, the Joint EVA Test Team (JETT3) and the Desert Research and Technology Studies programme (D-RATS), both designed to replicate aspects of future moon landings and help NASA engineers design the technology, protocols and tools to enable astronauts to do science on the lunar surface.

JETT3 mimicked the planned 2025 Artemis III mission to the moon's south pole, where astronauts will face challenging lighting conditions. The team operated at night, using a huge lighting rig to emulate the sun. New spacesuit technologies and sampling tools were used during the mock moonwalks, testing the ability of astronauts to conduct geological work in tricky terrain.

D-RATS tested pressurised rover technology that will allow astronauts to explore a wider lunar area. Ultimately, this feeds into NASA's goal of having a sustained human presence on the moon and, one day, on Mars.

Pictured clockwise from top right are: NASA astronauts Zena Cardman and Drew Feustel; a NASA team pushing a cart that simulates lunar lighting shadows; Cardman and Feustel during a simulated moonwalk; Japan Aerospace Exploration Agency D-RATS crew Yusuke Yamasaki and Akihiko Hoshide on a simulated moonwalk; and a D-RATS crew driving a pressurised rover prototype. ■

David Stock