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ISSUE #411 OCTOBER 2024
UK £5.99 US \$13.50 CAN \$14.99
AUS \$14.50 NZ \$19.99

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This is no ordinary drill. It's a robotic device that has been built to search for water on the Moon. It's one part of the Package for Resource Observation and in-Situ Prospecting for Exploration, Commercial exploitation and Transportation suite of instruments (PROSPECT to its friends), which the European Space Agency hopes to send to the Moon in 2028.

The drill (called ProSEED – PROSPECT Sample Excavation and Extraction Drill) features a multispectral imager and other sensors to detect and analyse the mineralogy of the regolith at its intended landing site of the lunar South Pole. Once the sensors pick up the right signs, the drill will bore more than a metre (3ft) into the surface to hunt for frozen water and other volatiles (easily vapourised chemicals).

Samples obtained by the drill will then be passed to a mini laboratory that also forms part of the PROSPECT suite. Here, the samples will be heated to analyse their constituent chemicals from the gases they release. PROSPECT will also test specific processes that could be applied for mining substances like Helium-3 in the future.

LEONARDO SPACE

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