Simulating Mars on Earth

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This rubble-strewn model of the Red Planet in ESA's ESTEC technical centre is used to put prototype planetary rovers through their paces. Officially known as the Automation & Planetary Robotics Lab, its nickname is the 'Mars Yard'. Dutch students explore this alien environment in the photo shown here, part of a series taken by image gallery TechniekBeeldbank.nu. The site offers the media positive images of engineering to appeal to young people.

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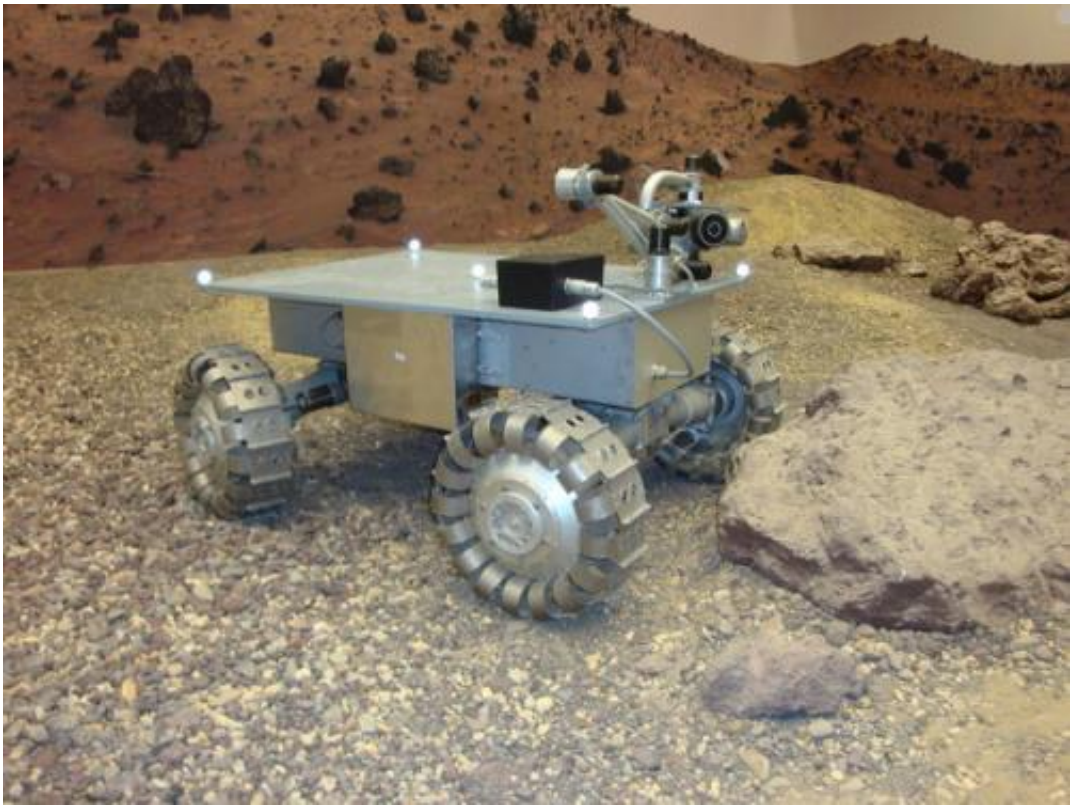
The Mars Yard is housed in ESA's ESTEC technical centre in Noordwijk, the Netherlands, in the Agency's Automation & Robotics Section.

Motion tracking cameras looking down on the 'Mars Yard'. The 8m x 8m Automation & Planetary Robotics Lab is used to characterise the performance of rover locomotion subsystems, test rover navigation and localisation algorithms and well as instrument positioning of planetary robotic arms. Moreover, it acts as a representative environment to evaluate the performance of integrated systems

with all these subsystems working together. Accordingly, specialised measurement equipment is used, such as motion tracking infra-red cameras and optical coordinate measurement systems. Credit: ESA

An 8 x 8 m square filled with sand and different sizes of gravel and rocks, the Mars Yard offers a small crater, a boulder field, a sandy dune and a gravel slope area.

This martian testbed serves to assess rover locomotion and navigation as well as the positioning of robotic arms – then check how all these elements operate together in practice, as integration is a major challenge in space robotic systems.



A prototype rover under test at ESA's Automation & Planetary Robotics Lab

(APRL), nicknamed the ‘Mars Yard’. Based at ESA’s technical centre ESTEC in Noordwijk, the Netherlands, the facility is part of the Agency’s Automation & Robotics Section. The APRL's goal is to prototype automation and planetary robotics related technologies, provide robotics systems integration expertise to combine the research outputs of several robotics activities with European industry, as well as provide the facilities to test rover platforms and planetary robotic arms. Credit: ESA

Specialised equipment for precisely recording the robots' performance includes motion-tracking infrared cameras.

Provided by European Space Agency