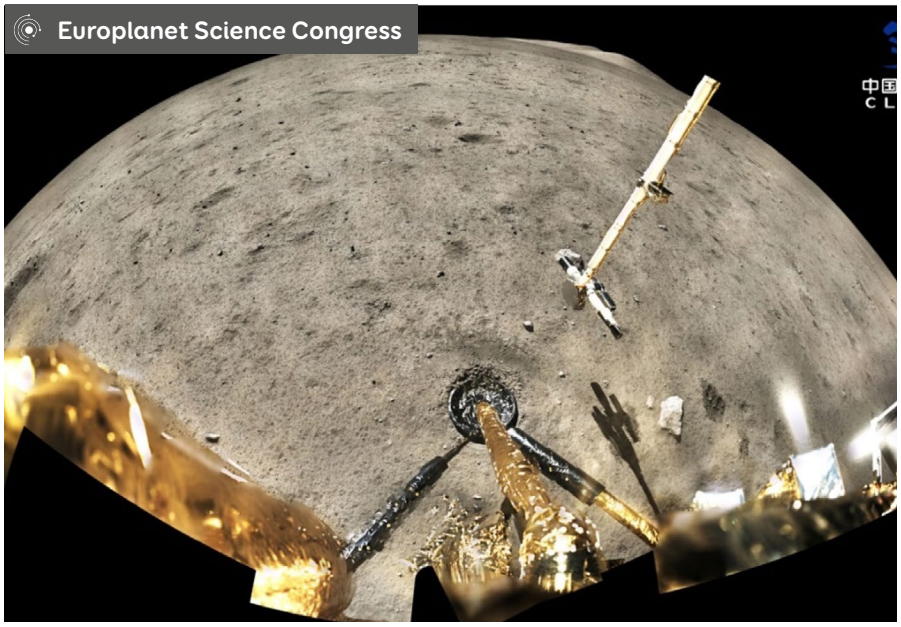
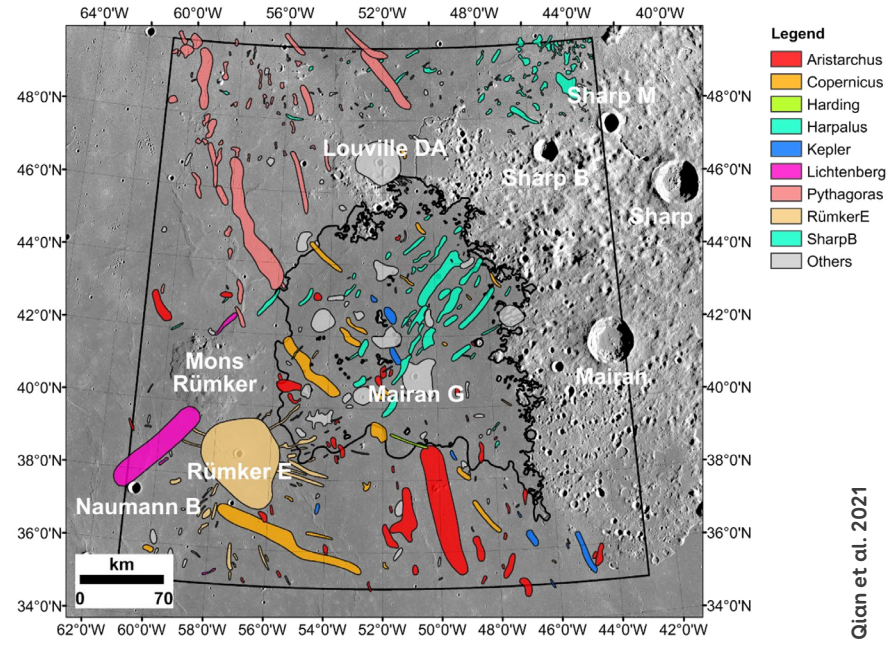


Exotic Mix in China's Delivery of Moon Rocks

On 16 December 2020, China's Chang'e-5 mission successfully delivered to Earth nearly two kilograms of rocky fragments and dust from the Moon. Chang'e-5 retrieved samples of the youngest lunar rocks ever brought back for analysis in laboratories on Earth. A geological mapping study presented at EPSC2021 by Yuqi Qian (China University of Geosciences) suggests that while 90% of the materials collected by Chang'e-5 likely derive from the landing site and volcanic mare basalts from the immediate surroundings, 10% could include exotic fragments such as glassy droplets from extinct volcanic vents, and debris from impact craters up to 1,300 kilometres away.



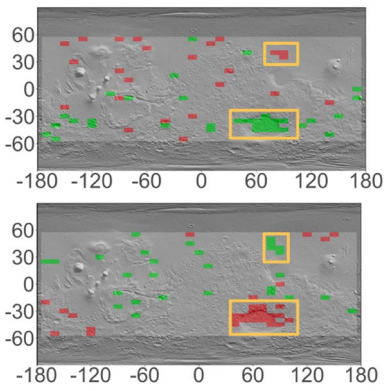
Qian et al. 2021

Possible sources of exotic fragments in Chang'e-5 lunar materials.

Seasonal Changes Reveal Water Deposits on Mars

Seasonal variations in levels of hydrogen detected at Hellas Planitia and Utopia Rupes, in the southern and northern hemispheres of Mars respectively, suggest that significant quantities of water ice can be found in the metre or so below the surface in these regions. Dr Germán Martínez (Lunar and Planetary Institute) said at EPSC2021: 'As the coldest ground temperatures occur at the same time as the largest-observed increase in hydrogen content, it suggests that water ice is forming in the shallow subsurface of these regions during the fall and winter seasons, and then sublimating into gas during the warm season of each hemisphere.'

These sources of water, away from the hostile polar regions, could support future human and robotic exploration in temperate regions of Mars.



Potential water deposits on Mars
Credit: G. Martínez.