South-Pole Crossing Tycho Ray Revealed by Mini-RF Radar

S-band radar observations with LRO’s Mini-RF help to characterize Tycho-disturbed material within the Artemis III candidate landing site of Haworth, informing sampling opportunities for missions to the Moon.

- The ray appears as a 15 km wide radar-bright feature extending ~1600 km from Tycho.
- Radar scattering from the ray is indicative of enhanced centimeter-to-decimeter-scale scatterers that decrease with distance from Tycho.
- Some secondaries along the ray are associated with radar-bright, asymmetric ejecta deposits that extend downrange from Tycho.
- Likely Tycho-secondaries were identified within Haworth and shown to be accessible by crewed missions to the Moon.

Rivera-Valentín et al. (2024) PSJ, doi: 10.3847/PSJ/ad320d