

**REMOTE COMPOSITIONAL COMPARISON OF RAY CRATERS IN
SOUTH POLE-AITKEN BASIN: FINDINGS FROM MOON
MINERALOGY MAPPER (M3) DATA**

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Ray craters are relatively young impact structures, which are characterized by narrow, generally high albedo, linear rays (features) extending radially outwards from the craters. High albedo materials that have been excavated from the crater cavity and emplaced beyond the continuous ejecta deposits are believed to be indicating the compositional character of the substrate. Moon Mineralogy Mapper (M3) onboard India's Chandrayaan-1 spacecraft provides an excellent opportunity to characterize mineralogy and composition of the lunar surface. Two ray craters are lying within oldest, deepest and well-recognized giant South Pole-Aitken (SPA) basin, therefore, were analyzed and compared for mineral and material composition using Moon Mineralogy Mapper data. The mapping algorithm developed by Lucey *et al.* (1995, 1998 and 2000) to extract iron, titanium and maturity of the surface material from the multispectral Clementine data was modified and evaluated. The compositional comparison of two ray craters supported the previous findings about mafic rich (noritic) mineralogical character of lower crust and anorthositic mature regolith of the upper crust at SPA basin. Most of the slumped crater inner walls depict the more fresh basaltic material just below the regolith.