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HR: 1340h
AN: **P53D-1547** ***Poster***
TI: The GIS-based geologic investigation of the South Pole-Aitken basin region of the Moon using SELENE elemental information
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AB: Using Geographic Information Systems (GIS), we performed comparative analysis among stratigraphic information and the Kaguya (SELENE) GRS data of the South Pole-Aitken (SPA) basin and its surroundings. Results indicate that the rock materials up to ~ 1m depth (including ancient crater materials, mare basalts, and possible SPA impact melt) are average to slightly above average in K and Th with respect to the rest of the Moon. The heavily cratered highlands outside of SPA represent ancient deep-seated crustal and possibly mantle igneous materials harvested in part from the giant SPA impact event as ejecta, as well as subsequent impact cratering events up until the end of the Late Heavy Bombardment, which includes intensive impact-related mixing of ejecta materials and lava flows. The geologic history of the SPA basin is distinct from the Procellarum-Imbrium region. The former records mainly pre-Nectarian activity such as the giant impact with minor mare volcanism during the Upper Imbriam, whereas the latter was largely resurfaced by activity such as the Imbrium impact event and subsequent emplacement of voluminous mare-forming lavas during the Lower Imbriam and Upper Imbriam, Eraatosthenian, and Copernican, respectively. These distinct geologic histories bear on the mineralogic and elemental abundances, as shown in our investigation through this GIS-based comparative analysis among the stratigraphic and Kaguya (SELENE) GRS data.
DE: [5410] PLANETARY SCIENCES: SOLID SURFACE PLANETS / Composition
DE: [5420] PLANETARY SCIENCES: SOLID SURFACE PLANETS / Impact phenomena, cratering
DE: [5464] PLANETARY SCIENCES: SOLID SURFACE PLANETS / Remote sensing
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