



The MOST INTRIGUING CORRELATIONS between NEUTRON SIGNATURES from LEND/LRO and MOON GEOLOGICAL CONTEXT

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We have used neutron spectrometer measurements with the Lunar Exploration Neutron Detector (LEND) onboard the Lunar Reconnaissance Orbiter (LRO) acquired during circular orbit mapping of the lunar surface and used them to create global maps of lunar neutron fluxes in different energy ranges with various spatial resolutions. We have studied possible correlation between observed neutron signatures on maps of thermal, epithermal and fast neutron flux with geological context on the lunar surface at equatorial and moderated latitudes. In our analysis we have revealed that several large crater basins both in the farside and nearside show significant increasing intensity of epithermal neutron flux in comparison with neighboring areas. For example, one can see a substantial increase of epithermal neutron flux in the southern hemisphere in such crater basins as Clavius, Maginus, Longomontanus and Tycho. At the equatorial latitudes within [-30S, 30N] high epithermal flux is observed at Mare Orientale, Mare Fecunditatis, Mare Nectaris, Mare Crisium and Mare Moscovience. We studied this phenomenon trying to compare variation of surface properties and variation of neutron flux at different energy ranges.