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Session 8A Paper 1

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### **Longitudinal, Seasonal and Solar Cycle Variation of Lunar Tide Influence on Equatorial Electrodynamic**

It has been well documented that the lunar tidal waves can modulate the ionospheric electrodynamic and create a visible influence on the equatorial electrojet (EEJ). The lunar tide influence gets intensified around noon, primarily during new and full Moon periods. However, the longitudinal, seasonal and solar cycle variability of the lunar tide influence on ionospheric current systems is not well understood yet.

In order to investigate this, 17 years (1998-2014) of extensive magnetometer observations at four longitudinal sectors (West America, West and East Africa, and Asian) have been analyzed. All observations that are performed during magnetically active periods ( $K_p \geq 3$ ) have been excluded for this study to eliminate storm contributions to the geomagnetic field variation at the geomagnetic equator.

This study's quantitative analysis revealed significant longitudinal, seasonal and solar cycle dependence of lunar tide influence on the equatorial electrojet.