Lightning mapper sensor from geo-stationary orbit

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Lightning observation from low earth orbit satellite has been implemented in recent years and due to its fruitful benefit to science, the geo-stationary lightning mapper is anticipated in the near future. The proposed sensor for thunderstorm observations and real time monitoring mission will address specific questions on clouds, weather, climate in a cost effective manner. The continuous observation of when, where, and how much lightning is occurring in Asian region will provide new insights into the formation and evolution of various storm types and will allow us to evaluate several cloud scale mechanisms affecting the storm electrification. The LIS and OTD have been providing important observation of the distribution and variability of global lightning but because of the limited viewing time afforded by the LEO satellites, they are unable to provide complete information on the lightning flash rates, the onset of lightning activity, the total number of flashes, the associated storm activity, and the lightning NOx production. The advantage of the geo-lightning mapper is the ability to continuously monitor storms throughout their life cycle with high resolution and the uniform detection efficiencies. This ability gives the proposed mission a unique capability that cannot be achieved either ground based sensors or other satellite missions.