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Abstract: **Monitoring Climate with the
Global Electric Circuit**

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Electrical processes within the Earth system are connected through a framework known as the Global Electric Circuit (GEC). Electrified weather across the globe generates currents that drive a large-scale flow of electricity through the atmosphere. The GEC is a novel framework for monitoring climate because it integrates global changes in the frequency and intensity of convection into a single quantity that can be estimated from satellite observations. The Geostationary Lightning Mapper (GLM) on the GOES R-series satellites will be an ideal platform for monitoring changes in electrified weather across the Western hemisphere due to its continuous measurements and high detection efficiency. In this study, we use a passive microwave retrieval algorithm of the GEC source current and satellite lightning measurements to explore the climatological variations of the GEC and visualize the scientific impact that GOES-R GLM will have in this field.