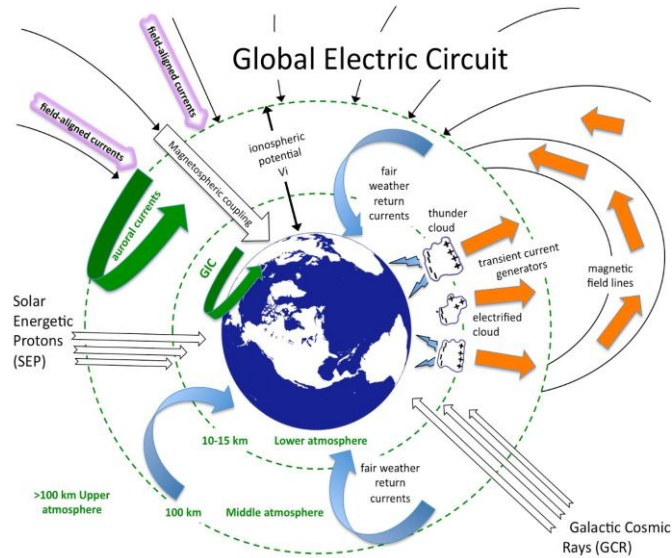


Linkage Between Convection and the Global Atmospheric Electrical System

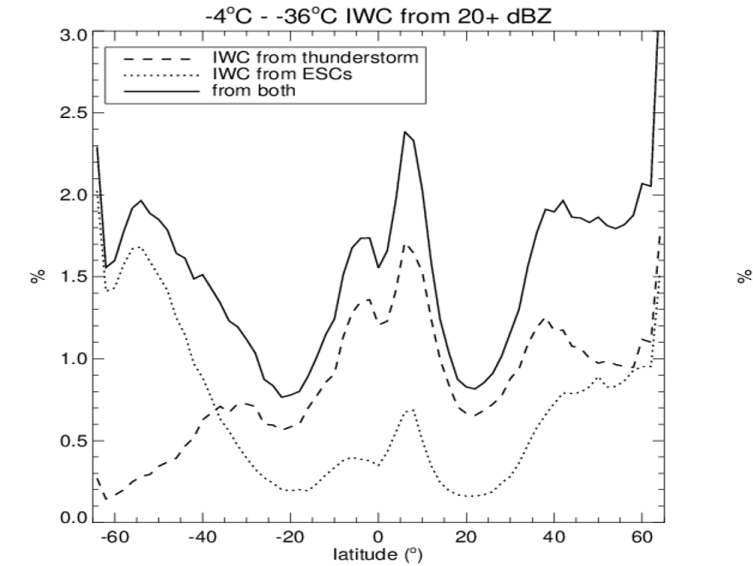
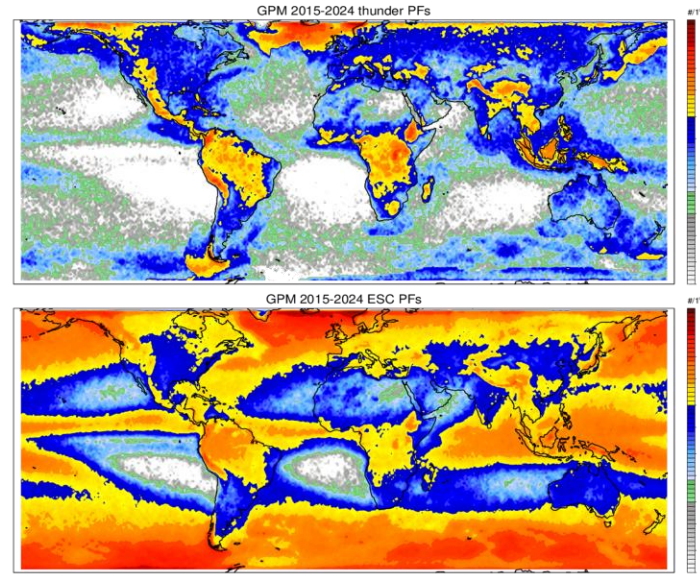


Thunder PFs

$T_{\text{maxht30}} < -24^{\circ}/-12^{\circ}/-16^{\circ}\text{C}$ for ocean/land/coast

Electrified Shower Clouds (ESCs)

$T_{\text{maxht30}} > -24^{\circ}/-12^{\circ}/-16^{\circ}\text{C}$ and $T_{\text{maxht20}} < -3^{\circ}\text{C}$



- The DC component of the GEC is driven by global electrified clouds, including thunderstorms and electrified shower clouds.
- If IWC within the cloud charging temperature range is a proxy for DC current generation, GPM Ku observations suggest that mid- and high-latitude clouds could be major contributors to the GEC.
- However, the observed diurnal variation of the fair-weather electric field is poorly reproduced when the contribution from mid- and high-latitude IWC is included.
- Recent observations from the IMPACTS field campaign showed relatively weak electric fields above wintertime thunderstorms.
- **What role do mid- and high-latitude electrified clouds play in the GEC?**

