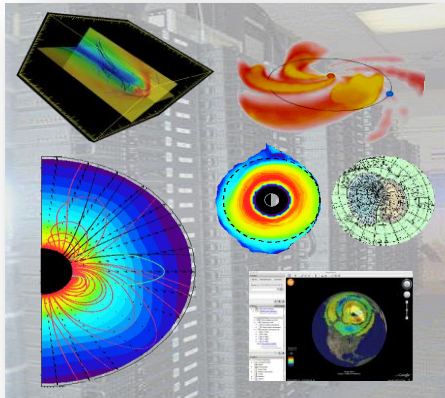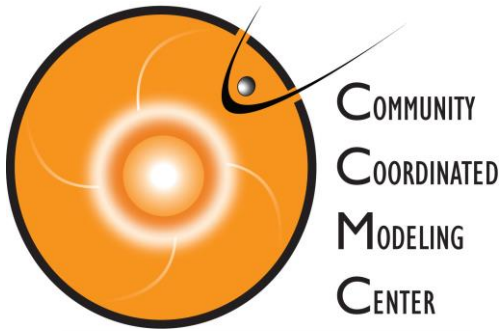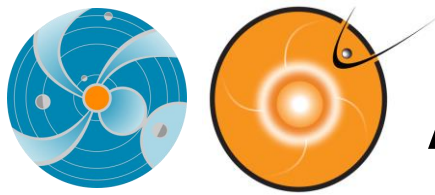# Key areas where we need improved capability to characterize geomagnetic disturbances pertaining to GIC

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Areas where improvements are needed

1. Models (coupling, physics etc) and space-based data drivers (L1, remote solar etc). Utility: forecasting and modeling of extremes.

2. Magnetometer arrays and corresponding science-quality GIC observations. Utility: monitoring, nowcasting, model validation.

3. Geology, especially 3D ground conductivity structure. Utility: improved modeling of the geoelectric field.

4. Understanding of extremes. Utility: better extreme scenarios for engineering analyses.