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Utilisation of geomagnetic data and indices for GIC applications

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The development of mitigation capabilities to counteract the detrimental impacts of space weather on critical ground infrastructure, such as power lines, pipelines and cables, depends on the availability of the observations of their causes as well as monitoring of the subsequent results. Although direct monitoring of critical infrastructure response to GeoMagnetic Disturbances (GMD) has become more advanced in recent years, observations of geomagnetic variations continue to play the most important role in all aspects of development of safe and robust operational procedures and technology, from the forecast of geomagnetically induced currents (GIC) to their climatological studies.

This presentation shows how different types of geomagnetic data are utilised, from 3-hour and 1-hour geomagnetic indices to 1 sec. geomagnetic data, and from real-time to multi-year climatology in order to provide forecasts of GIC, identify the effects of different geomagnetic patterns on infrastructure response or provide “climatology” for network design considerations.