



Response Mechanisms for Severe Space Weather events in the UK

Mark Gibbs, Catherine Burnett, and David R. Jackson

Met Office, Space Weather Research Group, Exeter, United Kingdom (david.jackson@metoffice.gov.uk)

Severe space weather can cause considerable impacts to Critical National Infrastructure, such as the electricity power grid, aviation, satellite communications and position, navigation and timing systems that rely on GNSS. As a result, many countries have added severe space weather to their National Risk Registers, including the UK, where it was added in 2011.

A key initial step is to own this risk and to provide information on which mitigation action can be based. The Met Office became the UK space weather risk owner in 2013 and via the Met Office Space Weather Operations Centre (MOSWOC), which was officially opened in 2014, it provides a 24/7 operational space weather service. This service includes twice daily guidance on the current and forecast space weather state and alerts for severe space weather. However, while this service is an important and necessary first step in managing the space weather hazard, we also need a mechanism to communicate the impacts to the affected users, and to coordinate their response. In this presentation we describe such mechanisms using two examples.

First, we detail specific actions MOSWOC takes in coordination with the National Grid (UK power generation authority) to respond to a severe space weather event. This is a logical focus, given that the UK is primarily concerned about severe space weather impacts on the power grid.

Second, we describe the process by which UK Government and wider UK industry responds to a MOSWOC severe space weather warning. In addition to direct contact between MOSWOC and key affected bodies (eg National Grid), there is a coordinated response that focuses on the Scientific Advisory Group for Emergencies (SAGE), which consists of space weather experts and representatives from affected industries and Government departments, and is headed by the UK Chief Scientific Advisor. Based on SAGE advice, if the space weather risk is considered to be very serious, the UK Prime Minister may then decide to set up a crisis response committee to co-ordinate the actions of UK Government, and other, bodies.

It is important to hold “tabletop” exercises to gauge the readiness of all bodies to respond to severe space weather and to ensure they understand and can fully contribute to the above mechanisms, and these exercises are also described here.