



## Space - the Final Verification Frontier?

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The Met Office Space Weather Operations Centre was established to assist affected industries and infrastructure in the UK build resilience to space weather; one of its products is a twice daily, four day probabilistic forecast of: X-ray flares, high energy electrons, geo-magnetic storms and high energy protons. It is crucial for forecasters, forecast-users, modelers and stakeholders to understand the strengths and weaknesses of these forecast products. Therefore the Met Office are investing in the development of verification systems to evaluate the performance; to this end the X-ray flare and geo-magnetic storm components are already subject to real-time verification, the results of which are available to operational MOSWOC forecasters 24/7. This presentation outlines both the methodologies used to provide this service and verification results, evaluated over a 2-year period. To assess the skill associated with these forecasts it is helpful to compare against a reference; to this end, various rolling prediction periods have been analysed to identify the time-periods which minimise the Ranked Probability Score. Analysis suggests that forecasts tend to err on the side of caution by over-predicting events; statistically speaking, only the first day appears to provide a significantly better prediction than the reference.