Verification of short lead time forecast models: applied to Kp and Dst forecasting

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In the ongoing EU/H2020 project PROGRESS models that predicts Kp, Dst, and AE from L1 solar wind data will be used as inputs to radiation belt models. The possible lead times from L1 measurements are shorter (10s of minutes to hours) than the typical duration of the physical phenomena that should be forecast. Under these circumstances several metrics fail to single out trivial cases, such as persistence. In this work we explore metrics and approaches for short lead time forecasts. We apply these to current Kp and Dst forecast models. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 637302.