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SPACESTORM - modelling space weather events and mitigating their effects on satellites

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Changes in the space environment, ultimately driven by the Sun, can significantly affect modern technological systems both on the ground and in space. Severe space weather can damage critical infrastructure and is a potential risk to national security. SPACESTORM is an EU project to model space weather events and mitigate their effects on satellites through better mitigation guidelines, forecasting of events and experimental testing of new materials and methodologies to reduce satellite vulnerability. The principle objectives and targets of the project will be presented and progress briefly reviewed. An important part of the project is the determination of extreme space weather events using long-term satellite measurements. By applying extreme value analyses to long-term datasets from GOES, POES and Giove-A we present the 1 in 10, 1 in 50 and 1 in 100 year space weather event for relativistic electrons in geostationary orbit, energetic electrons in low Earth orbit and internal charging currents in medium Earth orbit respectively.