

Space weather forecast of energetic particles and extreme space weather of magnetic storms
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I review our recent research activities on the space weather forecast of energetic particles, including galactic cosmic rays, solar protons, ring current, and radiation belt electrons. Theoretical approaches on the extreme space weather of geomagnetically induced currents and on extreme space climate during grand minima are also discussed. A new citizen science approach to investigate world-wide aurora sightings during extreme magnetic storms is also introduced.