

## **Aurora morphologies and their magnetospheric counterparts: from the Earth to giant planets**

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In the giant magnetospheres of Jupiter and Saturn, plasmas and energy could be received from external (i.e. solar wind) and internal (i.e. moons and rings) sources. The rapid rotation of the planet, combined with highly variable solar wind conditions, continually perturbs the magnetosphere. The extremely complex particle acceleration associated with these perturbations leads to energy dissipation in the magnetosphere and ionosphere. At the planet, auroral emissions are the signature of these processes. Therefore, remote sensing of aurora provides a global view for us to understand the energy dissipation in the magnetosphere-ionosphere coupling dynamics, which strongly complements spacecraft in-situ measurements. The energy and plasma sources in driving magnetospheric dynamics are often different at the Earth and giant planets; the fundamental plasma processes in coupling their magnetospheres and ionospheres however, have many similarities. It is hugely beneficial to transfer knowledge between the terrestrial and giant planet communities. Knowledge transfer can be highly valuable in understanding aurora morphologies and mechanisms in both terrestrial and planetary research.