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Sommario/riassunto

The aurora is the most visible manifestation of the connection of the Earth to the space environment and has inspired awe, curiosity, and scientific inquiry for centuries. Recent advances in observing techniques and modeling and theoretical work have revealed new auroral phenomena, provided a better understanding of auroral dynamics, and have led to an enhanced capability for auroral forecasts. This monograph features discussions of: *New auroral phenomena due to the ring current ion and polar rain electron precipitation *Various auroral forms and hemispheric asymmetry *Auroral model development and MHD simulations *Application of the auroral observations for radio absorption and scintillation *Aurora nowcast and forecast for space weather operations. Auroral Dynamics and Space Weather is a valuable contribution for scientists, researchers, space weather operators, and students of Earth's space environment.