Pc 5オーロラアーク脈動の地上・衛星同時観測

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Ground-space coordinated observations of Pc 5 auroral arc pulsations

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Morphological signatures of Pc 5 auroral arc pulsations observed on the ground are as follows: 1) East-west-aligned auroral arcs elongated ˜1000-3000 km, 2) Luminosity pulsations associated with poleward moving pulsation with recurrence period of ˜2-10 minutes (Pc 5 range), 3) Occurrence region is located at just the poleward side of commonly observed pulsating aurora in the post midnight sector (occurrence peak is ˜03 MLT), 4) Auroral structure is band-type diffuse aurora, 5) Luminosity is much higher than pulsating aurora, 6) Ground-based magnetic field variations (Pc 5 magnetic pulsations) are associated with the luminosity pulsations. We also examined the data obtained by the THEMIS spacecraft whose footprint traversed near the region of Pc 5 auroral arc pulsations observed on the ground. Particle and field characteristics observed by the spacecraft are as follows: 1) Electric field variations and plasma velocity modulations show one to one correlation with the Pc 5 auroral luminosity pulsations, 2) Magnetic field variations also show the same periods but the wave form is not so clear as that of electric field and plasma velocity variations, 4) Occasionally electron flux shows the same modulation. In this study we will examine in more detailed characteristics of Pc 5 auroral arc pulsations and their related phenomena using the data obtained by the ground-space coordinated observations. Then we will discuss the generation mechanism of Pc 5 auroral arc pulsations.