

R006-11

C会場 : 11/5 PM2 (15:45-18:15)

16:45~17:00

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Outflow jets from lobe reconnection and their relationship to shear flow

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One of the key parameters of magnetic reconnection is shear flow which is parallel to the reconnecting field. Several simulation studies have suggested that shear flow can reduce the reconnection rate and the outflow jet speed. On the other hand, another simulation indicates that the reconnection rate is not necessarily affected by the increase in shear flow. Further studies need to be done from observations to understand the role of shear flow in reconnection deeply. In reconnection at the high-latitude magnetopause during northward IMF, the magnetosheath flow in the tailward direction acts as shear flow. In this study, we took the lobe reconnection events from the observation by the Cluster satellites, and examined the relationships of the ion outflow jet to the magnetosheath tailward flow. In order to evaluate the role of shear flow quantitatively, we determined the velocity of shear flow and outflow jet, using data from the ion velocity distribution function. The result from the analysis has shown that there is a tendency for the ion outflow jet to increase as the speed of the magnetosheath flow tangential to the magnetopause current sheet increases. This indicates that ions are more greatly accelerated through the lobe reconnection as shear flow streams faster. This tendency seems to be inconsistent with the result of the previous simulation studies. We will discuss this discrepancy in terms of additional acceleration by the Hall electric field in the ion diffusion region.