

## The computation simulation of the Kelvin-Helmholtz instability considering the collision process with the neutrals

# Atsuo KAWAKATSU[1]; Shinobu Machida[1]

[1] Dept. of Geophys., Kyoto Univ.

It is known that the Kelvin-Helmholtz (K-H) instability occurs around the Venus ionopause. (e.g. Terada et al., 2001) Further, it is predicted that the vortex caused by the K-H instability produces the flux rope in the Venus ionosphere. In the interaction between the Venus ionosphere and the solar wind, the collisional processes such as the charge exchange and the electron impact ionization should be taken into account.

Including the collisional processes between the plasma and neutrals, we carried out numerical simulations and investigate the excitation of K-H instability and development of the vortex around the Venus ionopause. More specifically, we involved the collisional process using Monte-Carlo technique to the 2-1/2 D electromagnetic full particle code. A preliminary study shows an excitation and development of K-H waves and vortices. We investigated the effect of the spatial gradient of the neutral particle distribution to the linear and nonlinear development of the K-H waves and vortices.