

# Solar activity dependence of two types of east-west geomagnetic disturbances at mid latitudes

# Shin'ya Nakano[1]

[1] Dept. of Geophysics, Kyoto Univ.

It has been suggested that auroral electrojets are of two types, and each of them is associated with a different current system: the wedge current system and a current system related magnetospheric convection. I examined solar cycle dependences of the two different current systems. Each of two current systems is associated with a different field-aligned current system, which generates a different pattern of geomagnetic disturbances at mid latitudes. In order to examine solar cycle dependences of the two current systems, we investigated those of mid-latitude geomagnetic disturbances. The results suggest that the two current systems have different solar cycle dependences. The activity of the current system associated with convection has a good correlation with Dst activity, and it tends to be enhanced around a solar maximum. On the other hand, the wedge current system is enhanced in the late declining phase of the solar cycle. It was also suggested that relative contributions of the two current systems to auroral electrojet activity has a solar cycle dependence. The contribution of the wedge current system to auroral electrojet activity is rather small around a solar maximum, while it becomes considerable around a solar minimum.