

Long-term variation of geomagnetic activity at Syowa-Iceland conjugate stations (3)

Akira Kadokura^{1*}, Natsuo Sato¹

¹National Institute of Polar Research

Long-term variation of geomagnetic activity at Syowa Station (SYO) (S69.00 deg) in Antarctica and Leirvogur (LRV) (N64.18 deg) in Iceland was investigated. Both SYO and LRV are located at auroral latitudes and in a unique geomagnetic conjugate relationship with each other. Geomagnetic variation data from 1958 and 1966 until 2012 at LRV and SYO, respectively, were used for this analysis. Using those over four solar cycle data, similarity and dissimilarity in the solar cycle variation, seasonal variation, and diurnal variation of geomagnetic activity at those conjugate stations were investigated to understand interhemispheric difference in auroral activity responding to the variation of the solar wind input and solar activity. Following results were obtained so far:

1. Activity at LRV gradually decreased, relatively to one at SYO. Before and after around 1984-1989, magnitude at LRV was larger and smaller than SYO, respectively.
2. The year 2009 was the most quiet year at both stations in their records.
3. During the current solar cycle 24, activity was low at both stations, and relative magnitude of the annual variation of the north-south difference was large, so far.
4. A significant difference between SYO and LRV was observed in 1980 and 1982, when the activity was much more quiet at SYO than LRV.
5. Activity peak around equinox period can be seen more clearly in the nightside hours, while winter-summer difference is more clear in the dayside. In the nightside, a reversed sense winter-summer variation can be seen in the activity difference between LRV and SYO.

Keywords: magnetic activity, auroral activity, solar activity, long-term variation, conjugate observation

