**Low-latitude ASY index as an indicator of the high-latitude magnetic activity**

M.Yu. Goncharova, Yu.P. Maltsev

*Polar Geophysical Institute, Apatity*

Penetration of the high-latitude substorm electric fields and currents into the lower-latitude ionosphere is a well-known experimental fact. One can expect the low-latitude ASY index is formed by electric currents originated in auroral latitudes and spreading down to the equator. However, some researchers (e.g. S.-I. Akasofu) suppose the main contributor of the ASY H index is the partial ring current flowing near to the magnetosphere equatorial plane at a distance of a few $R_E$. We have found strong, slightly non-linear correlation between ASY and AE indices with rough proportionality ASYH/AE~1/14. Since the AE index is invalid during severe storms and requires many stations to be calculated we suggest the ASY index is more convenient and more adequate to characterize the auroral geophysical activity than AE index. By superimposed epoch technique the relationship of ASY H/D to other indices as well as to the solar wind parameters is examined. It is obtained, in particular, that the AE and ASY maximum values take place during the storm main phase.