

Aurora forecast based on AL index prediction

*Kaori Sakaguchi¹, Minoru Kubota¹, Masahito Nose², Ryuho Kataoka³

1. National Institute of Information and Communications Technology, 2. Kyoto University, 3. National Institute of Polar Research

In this poster, we present an aurora forecasting system that has been developed for the general public. The aurora appearing in the night sky in the auroral region has different luminance and color depending on the geomagnetic activity. It is known that the level of geomagnetic activity changes depending on the state of the solar wind near the earth. In this study, we first developed a method to predict the Aurora electrojet Lowest (AL) index a few hours ahead by multivariate autoregressive method using real time observation data of solar wind. Furthermore, we investigated correlation between AL index and aurora luminosities for each wavelength (557.7 nm, 630.0 nm, 427.8 nm) observed by ground-based all-sky camera. We found that AL index can be classified into 4 levels by color and luminosity (0: invisible, 1: green only, 2: green and red, 3: green, red and blue/pink). By combining these results, it is possible to forecast the luminance and color of aurora in a few hours by the predicted AL index. The aurora forecast calculated by this method will be distributed from the website in the future.

Keywords: aurora forecast, AL index