

S002-P13

ポスター 1 : 11/24 PM1/PM2 (13:15-18:15)

#田中 友啓¹⁾, 小川 泰信^{1,2)}, 田中 良昌^{1,2,3)}, 門倉 昭^{2,3)}, 吹澤 瑞貴²⁾, 村瀬 清華²⁾, 細川 敬祐⁴⁾, 大山 伸一郎^{2,5)}, Kero Antti⁶⁾

(¹ 総研大, (² 極地研, (³ ROIS-DS, (⁴ 電通大, (⁵ 名大 ISEE, (⁶ オウル大 SGO

Frequency dependence of CNA due to various sources observed by spectral riometers during the May 2024 storm

#Tomotaka Tanaka¹⁾, Yasunobu Ogawa^{1,2)}, Yoshimasa Tanaka^{1,2,3)}, Akira Kadokura^{2,3)}, Mizuki Fukizawa²⁾, Kiyoka Murase²⁾, Keisuke Hosokawa⁴⁾, Shin ichiro Oyama^{2,5)}, Antti Kero⁶⁾

(¹The Graduate University for Advanced Studies, SOKENDAI, (²National Institute of Polar Research, (³Joint Support-Center for Data Science Research, ROIS, (⁴The University of Electro-Communications, (⁵Institute for Space-Earth Environmental Research, Nagoya University, (⁶Department of Physical Sciences, University of Oulu, SGO

A spectral riometer measures cosmic noise absorption (CNA) in the frequency between 20-55 MHz and is expected to have an ability to estimate the altitude profile of the electron density especially in the lower ionosphere. In the May 2024 solar magnetic storm event, spectral riometers in the arctic region; in Kilpisjärvi (KIL, 69.07° N 20.75° E) and in Oulujarvi (OUJ, 64.52° N, 27.23° E) etc., observed a number of CNA enhancements. During this event, the CNA enhancements were caused by three different sources: solar X-rays, solar energetic protons, and energetic electrons from the magnetosphere, known as major sources of ionization in the atmosphere. These three types of events may have different altitude profiles of ionization. The CNA is expected to be proportional to the -2 power of the observed frequency when the electron density enhancement occurs at higher altitudes (>70 km), while the CNA would be proportional to between -1 and -2 power of the frequency when the enhancement occurs at altitude lower than 70 km. Therefore, we will investigate the frequency dependence of these three types of the CNA events. At around noon on May 11, for example, an intermittent strong CNA was observed by the riometers, when an X-class solar flare occurred at 13:30 UT, and an increase of energetic proton (>10 MeV) flux was also measured by the GOES satellite. Note that the solar zenith at noon on the day at that location was 52.6 degrees. In the presentation, we will show how the frequency dependence of the CNA spectra differs between the three types of ionization agent, and then discuss the mechanism behind such dependencies.