R011-15
C 会場 ：11/25　PM1 （13:15-15:15）
14:20〜14:35

#片岡 龍峰 [1,4)], レディ サチン [1)], 中野 慎也 [2)], ペティット ジョシュア [3)], 中村 勇貴 [4)]
([1] 極地研, [2] 統計数理研究所, [3]NASA/GSFC, [4] 東京大学

Citizen science of storm-time aurora in Japan

#Ryuho Kataoka[1,4)], Sachin Reddy[1)], Shinya Nakano[2)], Joshua Pettit[3)], Yuki Nakamura[4)]
([1]National Institute of Polar Research, [2]The Institute of Statistical Mathematics, [3]NASA/GSFC, [4]The University of Tokyo

During large geomagnetic storms, red auroras are typically observed from low-latitude countries such as Japan. The color arises from the specific emission line of Oxygen atoms at high altitudes. However, during the May 10-11th 2024 superstorm, magenta auroras were observed above Japan instead of the typical red. In this study, we demonstrate that the magenta hue is created by a mixture of red (O) and a blue (N2+) aurora at extremely high altitudes. The blue color originates from the N2+ first negative emission band caused by both resonant scattering of the upwelling molecular ions and heavy particle precipitation during the storm. This study is primarily driven by observations from citizen scientists, and confirmed and quantified with observations from spacecraft and modeling techniques. Additionally, we show that high solar activity, terrestrial season, and the preheating of the atmosphere all contribute to the occurrence of magenta aurora. This study showcases the value and richness of citizen science, and we anticipate that such approaches will become increasingly important in the future.