

Vertical and meridional extent of effects of energetic particle precipitation

*Yoshihiro Tomikawa¹

1. National Institute of Polar Research

This study extracts effects of energetic particle precipitation (EPP) on the middle atmosphere in the southern hemisphere from the latest reanalysis datasets using multiple regression analysis and composite analysis. Statistically significant temperature anomalies in the winter polar upper stratosphere and lower mesosphere are found, but a simple dynamical signature explaining the anomalies is not evident. On the other hand, it is found that a negative temperature anomaly extending from the polar lower mesosphere to the midlatitude upper stratosphere in July is driven by anomalous Eliassen-Pam flux divergence in the midlatitude lower mesosphere. Vertical and meridional extent of the EPP effects will be discussed in my presentation.