

Multi-spectral cloud imaging by S520-23 sounding rocket

Yukihiro Takahashi[1]; Daisuke Tamura[1]; Naoya Hoshino[1]; # Takeru Uno[2]; Yasuhiro Shoji[3]; Kazuya Yoshida[4]

[1] Dept. of Geophysics, Tohoku Univ.; [2] Dept. Geophysics, Tohoku University; [3] Dept of Aerospace Engineering, Tohoku Univ.; [4] Dept. Aeronautics and Space Eng., Tohoku Univ.

The behavior of water vapor in the upper troposphere and stratosphere is not fully understood due to the quite limited observations, though water vapor is one of the most important gases inducing green house effects. Cumulonimbus and thunderclouds are considered to be very important for transmission of water vapor to stratosphere. But no observation of 3-D distribution of water vapor around the top of such clouds with enough spatial extend has not been carried out due to the limitations of technical limitations. In this investigation, we try to obtain the water vapor's 3-D distribution around cloud top using sounding rocket, S520-23, which will be launched from Uchinoura by JAXA next summer. We use Liquid Crystal Tunable Filter (LCTF), and take image of cloud top. We have developed the methodology both of measurement and analysis to derive the information on the water vapor distribution, using liquid crystal variable filters. Based on the analysis of multi spectral images, we may firstly capture the distribution of water vapor.