Observational study of terrestrial atmosphere with a mm-wave radiometer at Nagoya University and planetary science with ALMA

Akira Mizuno[1]

[1] Astrophysics, Nagoya Univ.

We, a new group of atmospheric science of Nagoya University STE laboratory, study the middle atmosphere of Earth by spectroscopic observations with a millimeter-wave ground-based radiometer. We have a plan to install a small radiometer at Atacama in Chile, one of the best sites for mm/sub-mm-wave observations, to start observations of terrestrial ozone and water vapor. The new instrument ALMA, the ultimate radio telescope with an angular resolution of 0.01 arcsec, must provide new views of climate and gas dynamics of the planetary atmosphere. Comparative studies of terrestrial and planetary atmosphere with ALMA should be important to understand the physical and chemical phenomena of the terrestrial atmosphere.

I will briefly review the previous observations of planetary atmosphere with the millimeter-wave spectra such as CO, H2O, and HDO by US and European groups and discuss the potential to create a new field of atmospheric science by ALMA.