R007-10
C 会場 ：11/25　PM2 （15:30-18:15）
17:45〜18:00

#千葉 翔太 [1)], 今村 剛 [2)]
([1]ISEE, ([2 東京大学

Radio occultation observations of the solar corona by Akatsuki spacecraft from Cycle 24 to 25

#Shota Chiba[1)], Takeshi Imamura[2)]
([1]Institute for Space and Earth Environmental Research, Nagoya University, ([2]Graduate School of Frontier Sciences, The University of Tokyo

The solar wind is a supersonic plasma flow streamed from the solar corona. Solar wind acceleration mainly occurs in the outer corona at heliocentric distances of about 2-10 Rs (= solar radii), where the coronal heating by magnetohydrodynamic waves and the wave-induced magnetic pressure are thought to play significant roles in the acceleration. Although evidences of Alfvén waves in the chromosphere and the lower corona have been reported from optical observations (e.g., De Pontieu+ 2007), reliable information of the magnetic field associated with Alfvén waves in the acceleration region is still absent. Radio occultation observations have been conducted in numerous planetary missions to explore the solar corona. In particular, they provide crucial information on the low to mid-corona, which is poorly explored by in situ and even by remote sensing techniques.

The JAXA's Venus orbiter Akatsuki has also conducted the radio occultation of the solar corona during its superior conjunctions, even though the Radio Science (RS) experiment by Akatsuki aims to determine the vertical structure of the Venus atmosphere (Imamura et al., 2011). Akatsuki's RS experiments utilized the X-band (8.4 GHz) downlink signals transmitted by the onboard Ultra Stable Oscillator (USO). Akatsuki's observations cover the acceleration region at various phases of the solar activity cycle from the solar maximum to the minimum. The Doppler data, for example, represents the irregularities of the plasma density, and Akatsuki's observations detected Quasi-periodic density fluctuations in solar winds (Miyamoto et al., 2014; Chiba et al., 2022).

Here, we summarize the results obtained from the Akatsuki's coronal observations.