

R005-52

Zoom meeting C : 11/2 PM2 (15:45-18:15)

17:45~18:00

Development of the meteor radar functionality on the PANSY radar to reinforce wind measurements in the Mesosphere

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Program of Antarctic Syowa MST/IS radar (PANSY radar) is a large VHF atmospheric radar installed at the Syowa Station (69.0S, 39.6E). The PANSY radar measures three-dimensional wind fields through the Troposphere to Mesosphere using the Doppler Beam Swing (DBS) technique, converting the radial wind velocities from four oblique beams and one vertical beam into vertical, zonal, and meridional wind velocities. However, since the primary source of radar echoes in the Mesosphere is the ionized atmosphere generated by solar radiation, the availability of the wind measurements is mostly limited to daytime, especially in winter.

To reinforce wind measurements in the Mesosphere, a supplemental meteor-radar functionality has been developed and installed on the PANSY radar in March 2021. Generally, meteor radars do not have as high temporal or range resolution as MST radars but provide more continuous horizontal wind measurements regardless of time and seasons. Also, this system uses subsidiary meteor echoes scattered in sidelobes of the transmitted radio waves while in the wind measurement using the DBS method. Hence, wind fields estimated by the standard DBS method and meteor radar functionality are simultaneously available and complement each other.

In this presentation, the system description of the new meteor radar functionality on the PANSY radar will be reported, followed by some preliminary results.