

# Cloud-Aerosol-Wind-Observation Mission by using Doppler of cloud radar and Multi-FOV-High-Spectral-Resolution-Polarization-Doppler-Lidar

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Dual-Doppler velocity measuring mission by using space-borne cloud radar and lidar is proposed. 94GHz cloud radar and lidar with Doppler function will measure three-dimensional air motion in clouds as well as in clear sky, respectively. High spectral resolution functions at 355nm and 532nm with polarization are planned to distinguish cloud particle type and aerosols. The lidar will have multiple field of views in order to obtain information from relatively thick clouds. Since the 94GHz cloud radar will have capability to observe inside of the clouds and lidar will measure aerosols and clouds, it will be an extended version of space-mission to CloudSat and CALIPSO launched in 2006 and EarthCARE satellite in 2022. The mission will also serve to construct long continuous records of clouds and aerosols for climate change studies with CloudSat, CALIPSO, EarthCARE and future missions such as ACCP.

Keywords: cloud radar, lidar, cloud, aerosol, vertical motion

