



CNRM, UMR 3589

## SEMINAIRE CNRM

*jeudi 19 octobre 2023 à 14h*

### **GNSS POLARIMETRIC RADIO OCCULTATIONS: A NOVEL SOUNDING TECHNIQUE TO SIMULTANEOUSLY SENSE THERMODYNAMICS AND HYDROMETEORS**

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lien BJ: <https://bluejeans.com/248946549/4546>

Abstract :

The GNSS Polarimetric Radio Occultation (PRO) technique is being proved aboard the PAZ Low Earth Orbiter. This novel technique combines the well understood GNSS radio occultation (RO) sounding with measurements of the accumulated polarimetric phase shift along the GNSS RO ray-paths. In this way, each thermodynamic measurement along the GNSS PRO vertical profile is matched with the total phase delay suffered by the horizontally-polarized antenna with respect to the vertically-polarized one during the same radio-link. The studies show that the vertical profiles of polarimetric phase shift reproduce the vertical structure of convective clouds, sensing both rain droplets (especially for intense rain) and other hydrometeors. Signals up to 12-15 km altitude are common, way above the freezing layer. The seminar will present the technique, its strengths and weaknesses, examples of the studies being conducted with these signals, as well as the status of the GNSS PRO experiment aboard PAZ and recent new GNSS PRO missions.

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