

## Seminar on Microwave Physics and Atmospheric Physics

**Referent/in:** Dr. Renaud Matthey, Laboratoire Temps-Fréquence  
Université de Neuchâtel

**Titel:** Temperature, humidity and aerosol profiling by MeteoSwiss RALMO lidar in Payerne

Aerosols show highly variable space and time distribution. Present throughout the troposphere and even reaching the lower stratosphere, they affect both directly and indirectly the Earth's climate system by scattering solar and terrestrial radiation and by influencing the properties of clouds. They also affect the air quality and, hence, health and ecosystems. In order to better understand and estimate their impacts, and notably to decrease the uncertainties in the knowledge on the climate change and its future predictions, efforts have been promoted to produce highly reliable information on the four-dimensional distribution of aerosols. A lidar is a remote-sensing optical radar instrument that can, depending on its characteristics, deliver aerosol profiles with very high range and temporal resolutions (typically tens of meters and a couple or tens of minutes, respectively). This seminar will describe the main features of the atmospheric lidar technique, with emphasis on aerosol measurements, and review the capabilities of the Raman Lidar for Meteorological Observations (RALMO), which is operated at the MeteoSwiss station of Payerne, explaining the underlying atmospheric physical processes supporting the measurements. The on-going activity to upgrade the instrument for improved long-term aerosol product delivery will be presented, in particular the implementation of a two-channel depolarization receiver in a collaboration between MeteoSwiss and the University of Neuchâtel.

**Time:** Friday, 15. Oktober 2021, 10:15

**Location:** Room A97, ExWi, Sidlerstrasse 5, 3012 Bern

**Zoom:** <https://unibe-ch.zoom.us/j/97081325603?pwd=d0ozME5xOS9pQVNxallLem81VHQyZz09>  
Meeting ID: 970 8132 5603  
Passcode: iapmw