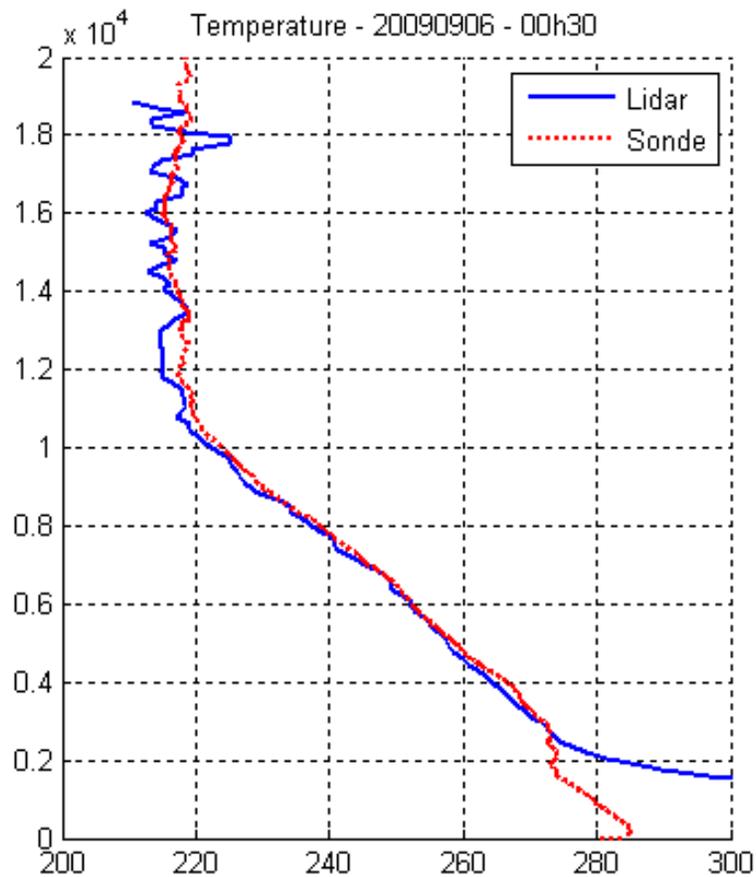


Water vapor mixing ratio (in g/Kg dry air) time series by vibrational Raman lidar: each profile is obtained as an average over 30 minutes, with a vertical resolution ranging from typically 30 to 300 m from the lowest level (typically 100 m agl) up to 12 km agl respectively. The effect of the daylight background can be seen for the data between typically 5 and 12 km agl in daytime conditions. On August 30 at 9 am, rainy conditions were observed thus preventing the lidar from any measurements until ca. 11 am. This unique picture of air moisture will in the future give important insights into the direct comparison with collocated instruments at the Aerological station Payerne (e.g. radiosonde and passive microwave remote sensing observations) as well as comparison with satellite observations (e.g. total water vapor content derived by GPS). It will also be used as a new challenge in the development and assimilation of numerical weather prediction models at high resolution.



First Temperature vertical profile obtained by rotational Raman lidar as compared with the operational radiosonde from the Aerological station Payerne: the Lidar signal is retrieved in photon counting mode, averaged over 60 minutes, with a constant vertical resolution of 150m.

Below 3 km agl the lidar signal can only be treated in analog mode due to saturation in photon counting mode.

Up to the altitude of the tropopause a good comparison with radiosonde is obtained.

By combining temperature and water vapor mixing ratio, the direct relative humidity profile will be retrieved.