



Atmospheric Boundary Layer temperature and humidity from new-generation Raman lidar

Martin Froidevaux (1), Chad Higgins (1), Valentin Simeonov (1), Eric R. Pardyjak (2), and Marc B. Parlange (1)

(1) EPFL Swiss Federal Institute of Technology at Lausanne, School of Architecture, Civil and Environmental Engineering, Lausanne, Switzerland (martin.froidevaux@epfl.ch), (2) University of Utah, Salt Lake City, USA

Mixing ratio and temperature data, obtained with EPFL Raman lidar during the TABLE-08 experiment are presented. The processing methods will be discussed along with fundamental physics. An independent calibration is performed at different distances along the laser beam, demonstrating that the multi-telescopes design of the lidar system is reliable for field application. The maximum achievable distance as a function of time and/or space averaging will also be discussed. During the TABLE-08 experiment, different type of lidar measurements have been obtained including: horizontal and vertical time series, as well as boundary layer "cuts", during day and night. The high resolution data, 1s in time and 1.25 m in space, are used to understand the response of the atmosphere to variations in surface variability.