Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11091, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11091
EGU General Assembly 2008

Assessment of the EZ LIDAR and Micro Pulse Lidar (MPL) performances at ARM Southern Great Plains (SGP) Central Facility for the measurement of clouds and aerosols

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Lidar investigation of temporal and spatial optical atmospheric properties will play a key role in the future for a continuous monitoring the whole planet. Several lidar networks will be operational in the next few years, so accurate and rugged instruments are required. In this goal, EZ Leosphere lidar performances have been assessed and compared with those of MPL lidars, already operational in the MPLNET network led by NASA.

The present work shows the results of the first of several planned validation campaigns that has been conducted at the end of October 2006 in Oklahoma at ARM SGP site. The validation campaign took place, between 23^{rd} October and 24^{th} October 2006. These two days represent a different scenario, with a clear sky on 23^{rd} and the presence of some Cirri and Cumuli on 24^{th} October. In the work are described the procedures in order to compare the same physical quantities. As first step, are chosen significative temporal intervals where intercomparisons will take place; then both raw atmospheric signals are treated and corrected to calculate the signal-to-noise ratio. As result, SNR are compared for different scenarios. The obtained results show a very good agreement between the two instruments.

Finally, EZ lidar quantitative measurements of optical properties of the atmosphere as extinction and backscattering coefficients will be compared with those retrieved by

other in-situ instruments, as Raman Lidar.