

LIDAR DIRECTORY FORM

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LIDAR LOCATION (CITY, COUNTRY, LAT., LONG.): Barcelona, Spain, 41.389,
2.112 E

SITE ELEVATION: 115 m

PARAMETER(S) OR CONSTITUENT(S) MEASURED:

Aerosols: extinction and backscatter coefficients
ABL height

RESEARCH OBJECTIVES AND SPONSOR: Climatological studies (Local companies,
Spanish Ministry of Education and Sciences, EU, ESA)

MEASUREMENT TECHNIQUE: Elastic backscatter and Raman lidar

MEASUREMENT RANGE: 0.5 - 25 km

VERTICAL RESOLUTION: 15 m

FREQ. OF MEASUREMENT (TYPICALLY): 3 times/week

MEASUREMENT TIMES (TYPICALLY): 1300 UTC and around sunset

LASER TYPE AND WAVELENGTH (s): Quantel Nd:YAG at 1064 and 532 nm

LASER ENERGY/PULSE: 150 mJ/pulse at 1064 and 532 nm

PULSE REPETITION RATE: 20 Hz

RECEIVER SIZE AND CONFIGURATION: Celestron 8-inch Schmidt-Cassegrain telescope

DETECTORS USED: Perkin Elmer APDs at 1064, and Hamamatsu PMT at 532 and 607 nm

SIGNAL PROCESSING: Analog at 1064 and 532 nm, Mixed (analog/photon counting) at 607 nm

ANALOG-TO-DIGITAL CONVERTER: 12 bit 10MHz

COMPUTER: PC

PLATFORM (if applicable):

PUBLICATIONS (5 recent and/or significant):

- M. Sicard, C. Pérez, F. Rocadenbosch, J.M. Baldasano, D. García-Vizcaino (2006), Mixed-layer depth determination in the Barcelona coastal area from regular lidar measurements: methods, results and limitations, *Boundary-Layer Meteorol.*, 119 (1), 135-157
- A. Comerón, F. Rocadenbosch, M. A. López, A. Rodríguez, C. Muñoz, D. García, M. Sicard (2004), Effect of noise on lidar data inversion with the backward Klett algorithm, *Appl. Opt.*, 43, 1-6
- C. Pérez, M. Sicard, O. Jorba, A. Comerón, J. M. Baldasano (2004), Summertime recirculations of air pollutants over the north-eastern Iberian coast observed from systematic EARLINET lidar measurements in Barcelona, *Atmos. Environ.*, 38, 3983-4000
- F. Rocadenbosch, A. Comerón, L. Albiol (2000), Statistics of the slope-method estimator, *Appl. Opt.*, 39 (33), 6049-6057
- F. Rocadenbosch, A. Comerón (1999), Error analysis for the lidar backward inversion algorithm, *ApplOpt.*, 38 (21), 4461-4474

COMMENTS:

PICTURES:

