



Intercomparison of aerosol optical parameters from WALI and R-MAN510 aerosol Raman lidars in the framework of HyMeX campaign

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The HyMeX program (Hydrological cycle in Mediterranean eXperiment) aims at improving our understanding of hydrological cycle in the Mediterranean and at a better quantification and forecast of high-impact weather events in numerical weather prediction models.

The first Special Observation Period (SOP1) took place in September/October 2012. During this period two aerosol Raman lidars have been deployed at Menorca Island (Spain) : one Water-vapor and Aerosol Raman Lidar (WALI) operated by LSCE/CEA (Laboratoire des Sciences du Climat et de l'Environnement/Commissariat à l'Energie Atomique) and one aerosol Raman and dual-polarization lidar (R-Man510) developed and commercialized by LEOSPHERE company. Both lidars have been continuously running during the campaign and have provided information on aerosol and cloud optical properties under various atmospheric conditions (maritime background aerosols, dust events, cirrus clouds...).

We will present here the results of intercomparisons between R-Man510, and WALI aerosol lidar systems and collocated sunphotometer measurements. Limitations and uncertainties on the retrieval of extinction coefficients, depolarization ratio, aerosol optical depths and detection of atmospheric structures (planetary boundary layer height, aerosol/cloud layers) will be discussed according atmospheric conditions. The results will also be compared with theoretical uncertainty assessed with direct/inverse model of lidar profiles.