



N2-Raman lidar for dust aerosol survey over the southern Spain within the frame of FENNEC

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The FENNEC program aims to improve our knowledge of both the role of the Saharan Heat Low (SHL) on the West African monsoon and the interactions between the African continent and the Mediterranean basin through the Saharan dust transport. The Saharan desert is the major source of mineral dust in the world and may significantly impact the air quality over the Western Europe by increasing the particular matter content. We will present the contribution of the French ground-based lidar to the FENNEC program. A N₂-Raman lidar equipped with co-polar and cross-polar channels has been implemented in the South-Eastern part of Spain, close to Marbella, in the center of San Pedro de Alcantara on a building flat roof. The lidar worked in synergy with a sunphotometer, which data are now a contribution to the AERONET network. The lidar measurements have been performed continuously by about 2.5 months between the 6 June and 26 August 2011. It is a valuable asset for monitoring dust aerosols within the atmospheric column and to separate their contribution from the local aerosol production. Indeed, several dust events with aerosol optical thickness larger than 0.5 at 355 nm were sampled, influencing the planetary boundary layer and the free troposphere until ~7 km height. Such events have been shown to be more originating from Morocco and Algeria, although more distant contribution can occur from Mauritania sources.