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5-year CALIPSO climatology of Saharan dust over North Africa and Europe

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We use monthly averages of CALIPSO level 2 backscatter product and a methodology for dust extinction retrievals, in order to provide a 3D climatology of Saharan dust over Europe and North Africa. The methodology is based on EARLINET ground-based measurements of the dust lidar ratio and corrections for the dust component included in the CALIPSO polluted dust aerosol type. The scheme is applied on a 1x1 degree horizontal resolution for a 5-year period (2007-2011). Seasonal variations of Saharan dust transport over the Mediterranean and towards Europe are identified, both in terms of frequency and intensity. Strong south-north and west-east trends are observed and quantified and the contribution of pollution-dust presence is estimated. Especially in the eastern part of the Mediterranean basin, the concurrence of dust with pollution is more frequent, given the higher levels of local and transported pollution over the area. Seasonal-mean extinction scale height metric, which corresponds to the altitude at which 63% of the AOD lies below, is additionally presented in order to characterize the vertical distribution features of dust transport.