

## **Dust forecast model intercomparison: Case study of the Dust Cloud of April 2011**

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The modelling of mineral dust often focusses on the understanding of the most outstanding dust events because they cause considerable damages on environment and health. The present contribution searches the evaluation and analysis of 4 (BSC-DREAM8b, NMMB/BSC-Dust, ECWMF-MACC and UK Met Office) dust (regional and global) models participating in the WMO SDS-WAS North Africa-Middle East-Europe (NA-ME-E) Node (<http://sds-was.aemet.es>).

This analysis is focused in the case of the dust cloud that occurred on April 2011. The dust cloud was observed by multiple satellites and ground-based observational networks. Dust was blown out over Morocco and Algeria on the 5th of April and reached the coast of Portugal and the south-western Spain the next day. The dust cloud continued to be transported to the northeast reaching Scandinavia on April the 10th. The model evaluation includes in-situ measurements of surface concentration (PM10) and aerosol optical depth (AOD) as well as satellite retrieved AOD (OMI, MODIS, MISR and PARASOL) and vertical profiles from aerosol extinction (CALIOP). The model intercomparison discussion will focus on the model capability to properly simulate a dust event which is directly linked to the accuracy of the computed saltation threshold velocity. In addition to the accuracy on the wind speed, the surface characteristics, which are never perfectly reproduced, also play an important role in the simulation of dust emissions. The evaluation of several models and eventual different model versions is crucial to understand the reason of individual model performance for an extreme dust event