

## PROJECT: Warning Advisory System for Sand and Dust Storm in West Africa\*

### Technical installation and operational requirements

#### Overview:

AEMET is designing a project to develop a Sand and Dust Storm Warning Advisory System (SDS-WAS) for western African countries \*(including Chad, Cameroon and Central African Republic), similar to the Burkina Faso SDS-WAS operational since October 2018. This project includes the deployment of a network of in-situ and total-column aerosol measurement sites in Northern Africa using low-cost instrumentation in order to evaluate the performance of the warning system.

This document summaries the instrumentation technical requirements.

#### Links to the documents and website:

Burkina Faso SDS-WAS technical report:

<https://sds-was.aemet.es/materials/technical-reports/SDSWASNAMEE2018001.pdf>

Burkina Faso SDS-WAS forecast:

<https://sds-was.aemet.es/forecast-products/burkina-faso-warning-advisory-system>

#### Objectives:

- Monitoring of dust intrusions
- Validation of the SDS-WAS (Sand and Dust Warning Advisory System)

#### Material provided for each station:

- One manual hand-held photometer (fig 1a)
- One PM counter (fig 1b)



### The operational requirements for the hand-held manual photometer:

- a meteorologist/technician to measure AOD manually 3 times a day (at agreed time)
- send data through internet to a server (application provided)

### Technical requirements for mounting the PM counter:

- Suitable installation site
- 45 cm diameter and 2 m high mast
- 220 V power/current
- Ethernet cable, router and network configuration: IP, subnet mask, DNS, gateway

This device does not have any maintenance. It would be necessary to check if data are been sending and the counter is functioning properly.

In order to provide an uninterrupted supply of electricity and consequently loss of measurements the PM sensor must be connected to a UPS.

An example of an installation site is provided in fig 2 where several PM counters can be seen. Take into account that a watertight box will be provided which will house the electronics (fig3)



Fig2: PM sensor comparison installation site



Fig 3. Watertight box