

Interactive
Comment

Interactive comment on “An automatic collector to monitor insoluble atmospheric deposition: an application for mineral dust deposition” by B. Laurent et al.

M.-D. Loÿe-Pilot (Referee)

loye@canoe.ens.fr

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General comments

This is a good paper which describes a robust and smart device for the determination of insoluble aerosols deposition and gives a first interesting data set obtained in Frioul Island .

Specific comments

- The device

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Are you sure that no matter remains stuck on the funnel inner surface? From my own experience rinsing is not sufficient to remove clay particles, even with associated vibrating. Perhaps the funnel graphite material is especially suitable but you should give proof of that (observations, references) .

Do you have encountered problems with insects, coarse vegetal debris or pollens on your filters? How did you solve them?

Have you made experiments on the evolution of flow across the filter when covered with different amounts of dust material? Do you have assessed the risk of overflow in case of strong rain events? It could happen for daily precipitation rate higher than 50mm as a first raw estimation. Do you have data on rainfall intensity (at least on a daily basis) during your survey in Frioul? In your other sampling stations?

- The data set for Frioul site.

You recorded insoluble particles deposition almost every week in spite of the sporadic deposition of Saharan dust; what are the possible other sources for these non Saharan insoluble particles? Have you an estimation of their relative contribution to the total deposition of insoluble particles? You should discuss this point before classing total insoluble deposition as Saharan dust deposition.

It is incorrect to give annual values of dust deposition when almost 2 months are lacking for each year; especially for 2012 the data of November, which is usually a “good dusty” month, are lacking. Give the beginning and ending dates for your data set.

The standard deviation of 2 values for your time serie in figure 5 is perhaps illusive. It would be better to give the 2 values for each month and mention “no data” for January, February 2011 and November, December 2012.

The backward trajectories are not very convincing. . . the arrival dates/ hours are probably not well chosen. Perhaps could you show more appropriate ones?

- Small details

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Loss at 550°: note that the percentage of loss for the F7 (l. 292) is high but the absolute difference is quite near of the precision of your balance.

l. 302 : I am surprised that kaolinite displays a loss of 18% at 550° and smectite less than 2.5% in the publication of Sun et al. Probably the kaolinite mineral analyzed by Sun et al, which is a commercial product , is not a pure kaolinite sample.

Technical remarks

L 39 : suppress : “concentration” L45 : add of Saharan dust in “This collector is used to sample atmospheric deposition..”) L 46-47 : suppress : “over which Saharan dust 46 can be transported and deposited”. L227 : references are wished L299-30: you should regroup minerals without a significant LOI -< 0.2%- (quartz, feldspars, calcite, hematite) on one side and typical clay minerals with LOI higher than 1% on the other side.

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