

Supplement of Atmos. Meas. Tech., 8, 2801–2811, 2015
<http://www.atmos-meas-tech.net/8/2801/2015/>
doi:10.5194/amt-8-2801-2015-supplement
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Supplement of

An automatic collector to monitor insoluble atmospheric deposition: application for mineral dust deposition

B. Laurent et al.

Correspondence to: B. Laurent (benoit.laurent@lisa.u-pec.fr)

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1 Technical notes about the *CARAGA* collector.

2

3 In order to transport and implement easily the *CARAGA* collector on remote site, it has been
4 designed as separate modules, electrically connected to one another by tight connections.

5

6 The 7 modules of the *CARAGA* are:

7

8 - A tripod which can be removed and adjusted (height and horizontal level) to insure the
9 correct installation of the sampling unit.

10 - A spacer set to make higher the top of the collecting funnel (2.5 m above the ground) and
11 allowing fixing the others modules.

12 - An electrical control unit containing the battery and the regulator system and allowing to
13 program operation commands. The device allows testing the collector functions and
14 simulating a complete cycle of the collector running. The program can be adjusted on-site
15 (selection of day and time for the sampling time step, duration of the workflow...).

16 - An automated sampling rotating unit (carousel) of 25-filter holders in which the drive unit,
17 the enslavement and the filtered air ventilation system are installed.

18 - The collecting top part which consists in a graphite funnel (0.2 m²) equipped with vibrating
19 and rinsing systems and a casing protection.

20 - A reservoir containing ultrapure water to rinse automatically the funnel and the sample
21 system.

22 - A ladder hinged on the tripod and the spacer set allowing accessing and maintaining the
23 modules.

24 - A solar panel 20 W.

25

26 The power supply is possible in 12 Vdc or 24 Vdc and the average consumption is 40 to 45
27 mA h⁻¹. The *CARAGA* has an overall mass of 100 kg. It is necessary to provide stowage and
28 slings to fix the *CARAGA* on the ground.



Dry and wet deposition are collected in the funnel...



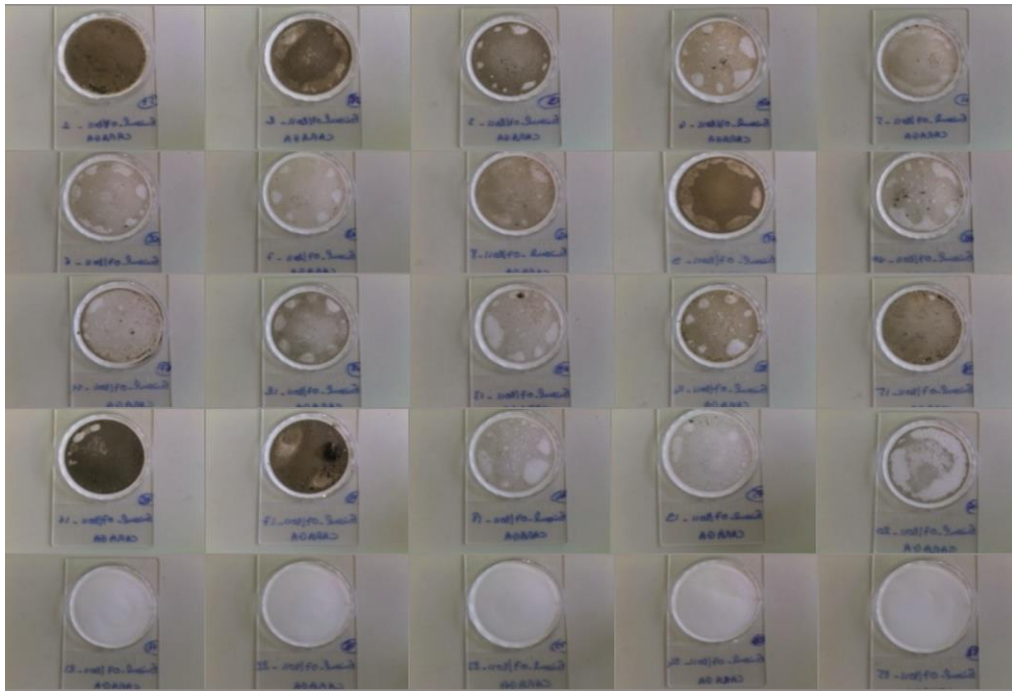
... and then on one of the 25 filters of the rotating sampling unit



29

30 Figure S1: CARAGA sampling system of total insoluble atmospheric deposition installed on

31 Frioul Island (43.27°N; 5.29°E).



32

33

34 Figure S2: In-situ filters and control blank filters (last filter line) collected at the Frioul site

35 between July and December 2011.