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Supplement of

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

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Technical notes about the CARAGA collector.

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

The 7 modules of the CARAGA are:

- A tripod which can be removed and adjusted (height and horizontal level) to insure the correct installation of the sampling unit.
- A spacer set to make higher the top of the collecting funnel (2.5 m above the ground) and allowing fixing the others modules.
- An electrical control unit containing the battery and the regulator system and allowing to program operation commands. The device allows testing the collector functions and simulating a complete cycle of the collector running. The program can be adjusted on-site (selection of day and time for the sampling time step, duration of the workflow…).
- An automated sampling rotating unit (carousel) of 25-filter holders in which the drive unit, the enslavement and the filtered air ventilation system are installed.
- The collecting top part which consists in a graphite funnel (0.2 m²) equipped with vibrating and rinsing systems and a casing protection.
- A reservoir containing ultrapure water to rinse automatically the funnel and the sample system.
- A ladder hinged on the tripod and the spacer set allowing accessing and maintaining the modules.
- A solar panel 20 W.

The power supply is possible in 12 Vdc or 24 Vdc and the average consumption is 40 to 45 mA h⁻¹. The CARAGA has an overall mass of 100 kg. It is necessary to provide stowage and slings to fix the CARAGA on the ground.
Figure S1: CARAGA sampling system of total insoluble atmospheric deposition installed on Frioul Island (43.27°N; 5.29°E).

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

...and then on one of the 25 filters of the rotating sampling unit.
Figure S2: In-situ filters and control blank filters (last filter line) collected at the Frioul site between July and December 2011.