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Atmospheric Measurement Techniques Discussions

Supplement of

An automatic collector to monitor insoluble atmospheric deposition: an 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 m^2) 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.