Further aspects of field QA/QC

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Why?

In order to guarantee the quality of our data, it is essential to follow QA/QC procedures in all stages of the deposition monitoring process, from the field to the lab and further, to reporting of the results.

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Field QA/QC indicators of the EPD

1: Number of plots for which studies on spatial arrangement combined with calculations of the needed number of samplers exist.

2: Number of plots with 20, 25, 35 or more than 35 samplers installed for throughfall measurements.

3: Number of plots for which regularly total deposition estimates + indication which methods is used are done annually for all measured ions.

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Earlier, we discussed sampling procedures (container cleaning, sample collection, storage and transport), including QA/QC aspects.

There are other aspects of field QA/QC.

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Selection of staff

Depends to some extent on the nature of the country.

- Local people (e.g. Norway)
- Staff from the responsible institute

Staff must be well-trained. Particular attention may need to be given to training of staff who don't normally work at the institute.

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Siting requirements

Sites should be assessed annually with respect to the siting criteria, in order to determine whether they still meet the requirements.

Example: bulk precipitation samplers in an area with saplings.

If changes of site are necessary, they must be documented. Preferably, the old and the new site should be run in parallel for a certain period.

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Samplers

Samplers should meet the requirements in the manual. They should be tested for chemical inertness before being deployed in the field. High and low volumes of deionised water, reference solutions and real rainwater samples can be used for this purpose. Old vessels should also be tested every five years to ensure that they still meet the requirements.

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Samplers must be checked when samples are collected, to make sure they are functioning correctly (e.g. in case of blockages or leaks). Spare parts should preferably be stored at or near the site, where they are easily available when needed.

How can we test our field QA/QC procedures?

Sampler intercomparisons

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Use of field blanks (GAW, EMEP, NADP)

Field blanks can be collected by pouring an aliquot of deionised water (e.g. 50-100 ml) into a dry sample container that was installed in the sampler during a sampling period in which no precipitation occurred, or for a short period which simulated the sampling period. The field blank is submitted to the laboratory in the same manner as precipitation samples.

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These procedures were developed for wet deposition sampling. How can they be applied to bulk precipitation, throughfall and stemflow sampling (where there is e.g. an effect of dry deposition)?

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