

**International Conference on  
Environmental Radioactivity : From Measurements and Assessments to Regulation**

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SESSION 5: QUALITY

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The session on ensuring the quality of environmental measurements included 11 oral presentations and 5 posters.

The topics and themes covered in the session were:

- Sampling strategies and comparability;
- Methods of data evaluation – including software evaluation;
- Laboratory accreditation;
- Certified reference materials and metrological traceability; and
- Proficiency testing – with results reported from some recent programmes.

There was a general acceptance that reference materials and their availability is key in ensuring quality in environmental measurements. Presentations and discussion also addressed the desire that such reference materials be certified to ensure metrological traceability to SI units. In this context, it was felt that there should be further development of the suite of reference materials to include NORM and TENORM, additional and diverse media and analytes. International agreement should be reached on appropriate criteria for defining good reference materials.

However, the presentations and discussions also emphasized that quality assurance extends beyond laboratory measurements and the traditional proficiency testing approach should be broadened to include:

- sampling strategies in the environment and assessment;
- software (such as that used in gamma spectrometry; and
- models.

Performance criteria appropriate to the different areas require to be developed.

It was also considered essential that there should be closer links between the proficiency testing organizer and the participating laboratories. In these exercises, more attention should be paid to the sharing of good practices and to the exchange of knowledge, in this way proficiency tests could be linked to training opportunities.

An additional point is that methods for data evaluation and uncertainty estimation should be further developed in the context of proficiency testing.

It was noted that several international organizations are involved in metrology and it is desirable to have greater harmonization and closer collaboration between them.

Finally, following discussions, the views emerged that further research is needed on:

- data evaluation methods for proficiency testing and which can be used when dealing with measurements at limits of detection, and qualitative data (rather than only quantitative data);
- methods to complete and present uncertainty assessment and development of uncertainty budgets; and
- more generally, to define performance criteria for reference materials, and to the concept of a reference site as would be required to assess comparability of sampling techniques for example.