

NERIS Workshop 2017

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Title

Air Borne Monitoring

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Text

In Belgium, two identical instruments consisting of large-volume (4x4 liter) NaI(Tl) detectors for performing Aerial Gamma Surveys (AGS) are available and have been intensively tested over the past 4 years. They are primarily intended for mapping large scale radioactive ground contaminations, in the aftermath of a possible nuclear accident, or for searching a lost source. For these purposes, the AGS equipment is mounted on board of a helicopter or a small aircraft after which the area to be investigated is overflown. This allows fast and efficient mapping of any relevant gamma-emitting radioactive ground contamination, an extremely useful technique as for example has been demonstrated in the aftermath of the Fukushima accident.

First, the experience from several test-flights with different vectors and over different areas will be discussed. The test-flights include surveys over small scale historically contaminated areas with different helicopters and inter-comparing the two sets of equipment. In addition, flights over hilly areas were conducted to study ground clearance corrections and flights were scheduled as part of full-scale federal nuclear emergency exercises.

Secondly, based on the experience from the test-flights, scientific and operational challenges for further investigation are explored. Such challenges include the timing and planning of flights (residual releases and complex spectra after fresh fall-out), quantifying and establishing detection limits in function of the overall management and protection strategy, calibration aspects (especially fast methods and methods for relatively short-lived radionuclides and comparison with ground-based methods) and interpretation of results in case of non-homogenous environments.