

INSTRUMENTAL PROCEDURES TO CHARACTERIZE RADIOLOGICAL IMPACT ON A CONTINUOUS BASIS.

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As a result of the Chernobyl accident, the CIEMAT has developed and instrumented a mobile laboratory to characterize the radioactive - cloud while still airborne.

This unit measures the most important radiological parameters, such as gamma exposure rate, activity concentration on air and on the terrain. The measurements are made on real time and while moving over preassigned roads.

The gamma exposure rate is measured continuously in the range - from 1 uR/h to 100 R/h, with two G.M. detectors and an ionization chamber. These units are measure at 0.4, 1 and 6 m. over the ground.

The data are processed automatically and the results are transmitted to an Emergency Center via a microcomputer installed in the mobile unit.

The air activity concentration is measured continuously through a particulates filter first, and an activated charcoal filter second. Both are integrated in a plastic scintillation counter for beta radiation and a second one (NaI) for Iodine.

These results are also automatically processed and transferred - to the Emergency Center as before. The filters, however, are subsequently analyzed via gamma spectrometry with a Ge detector, also installed in the unit. This is used to determine the overall isotope composition over each road sector travelled.

The same spectrometry detection system can also be adapted to measure deposited activity over the roads.

Experimental data obtained by these units around a Nuclear - Power Plant will be presented.

(Poster presentation)

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