

# Uncertainty Model

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Measuring radionuclide releases from underground nuclear explosions is extremely challenging given the likely low release and increasing background releases. This becomes even more challenging when measurement uncertainties are not fully understood and can make decisions based on measurements questionable. The work presented here will lay out a holistic uncertainty model that includes terms ranging from the initial detector calibration to physics constants to counting statistics. The uncertainty framework is applicable at low counting statistics near or at background levels and, although the uncertainty framework is based upon United States developed systems, it will be applicable to a broader range of systems.

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## Promotional text

This work addresses the objective of SnT2023 by improving nuclear-test-ban monitoring accuracy through the presentation of a holistic uncertainty model for beta-gamma radionuclides.

## Oral preference format

in-person

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