

## Source Term Estimation Using Multiple Isotopes in Atmospheric Samples

Algorithms that estimate the location and magnitude of an atmospheric release using remotely sampled air concentrations typically involve a single constituent. A new algorithm is presented that makes discrimination between possible types of releases (e.g., nuclear explosion, nuclear power plant, or medical isotope production facility) an integral part of the analysis for samples that contain multiple isotopes. Algorithm performance is demonstrated using synthetic data and shows promise in discriminating between different hypotheses on the release type, especially if data are available on 3 or more isotopes.

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