



Different options for noble gas categorization schemes

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For noble gas monitoring it is crucial to support the decision makers who need to decide whether a detection may indicate a potential nuclear test. Several parameters are available that may help to distinguish a legitimate civilian source from a nuclear explosion. The most promising parameters are:

- (a) Anomaly observations with respect to the history of concentrations found at that site.
- (b) Isotopic activity ratios can be used to separate a nuclear reactor domain from the parameter space that is specific for nuclear explosions.
- (c) Correlation with source-receptor-sensitivities related to known civilian sources as determined by atmospheric transport simulations.

A combination of these can be used to categorize an observation. So far, several initial ideas have been presented but the issue of noble gas categorisation has been postponed with the argument that further scientific studies and additional experience have to be awaited. This paper presents the principles of different options for noble gas categorisation and considers how they would meet the interests of different classes of member states. It discusses under different points of view what might be the best approach for the noble gas categorisation scheme.