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## the Right Noble Gas Tracer: Balancing Experiment Needs and Practical Challenges

Noble gas tracers play a crucial role in environmental transport experiments, offering valuable insights into gas movement and interactions in both the subsurface and atmosphere which can be used to enhance noble gas sampling strategies for On-Site Inspections (OSI) and inform noble gas source terms for the International Monitoring System (IMS). The selection of appropriate noble gas tracers can be influenced by several experimental parameters, including the duration of the experiment, sampling requirements (real-time versus discrete sampling), tracer interactions with the environment, and the practical aspects of obtaining specific tracers. This presentation will discuss the benefits and challenges associated with different noble gas isotopes, highlighting their unique properties and suitability for various transport experiments. By examining these factors, we aim to optimize tracer selection to enhance the accuracy and reliability of environmental transport studies.

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