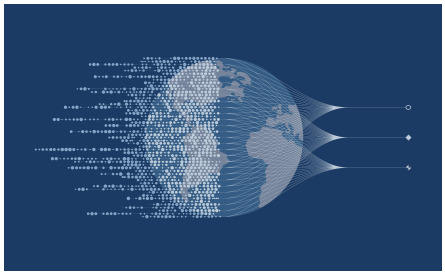

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# of radionuclides airborne dispersion in complex terrain with the Los Alamos National Laboratory QUIC model

Radionuclide released by an underground nuclear explosion (UNE) may seep through the overburden and become airborne. Once in the atmosphere, their fate will depend on the release location (flat versus mountainous terrain) and conditions (jetting versus seeping, hot versus neutral). In mountainous terrain, winds are very heterogeneous due to terrain effects like channeling, blocking and thermodynamically driven slope flows, requiring high resolution modeling tools to adequately resolve. These local effects may affect the long range transport of gasses and particulate released in UNE. In this talk, we will present a very high resolution fast-running wind downscaling and transport and dispersion model: the Los Alamos National Laboratory QUIC model. Its low computational cost is an advantage when compared with full-physics atmospheric models such as the WRF-LES, which require high performance computing resources to perform high resolution simulations and runs slower than real time. We will present downscaling from WRF forecasts and model validation against experiments in complex terrain.

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