

Modeling of Atmospheric Transport and Dispersion over Mountainous Terrain for METEX21

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Simulations of atmospheric transport and dispersion have been demonstrated to benefit from a multiscale modeling approach that resolves both mesoscale meteorology, such as frontal passages, and microscale meteorology near the plume source, which can be heavily influenced by complex (i.e. mountainous) terrain. The atmospheric modeling community has yet to settle on recommended best practices when configuring multiscale models, because of the inherent need for a comprehensive and varied suite of observations associated with accompanying modeling studies. The recent METEX21 observational field campaign included the controlled generation and monitoring of plumes in a region of complex terrain, including spatiotemporally dense observations of meteorology within the atmospheric boundary layer. Analysis of multiscale simulations of transport and dispersion during METEX21 are an important step towards developing best practices for future multiscale modeling studies, evaluating recent model developments, and improving the accuracy of transport and dispersion simulations over complex terrain.

Promotional text

This contribution employs state of the art multiscale atmospheric modeling to simulations of atmospheric transport and dispersion of materials over complex terrain. These simulations are evaluated against observations from the METEX21 field campaign.

E-mail

wiersema1@llnl.gov

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in-person

Primary author: Mr WIERSEMA, David (Lawrence Livermore National Laboratory (LLNL))

Co-authors: LUNDQUIST, Katherine (Lawrence Livermore National Laboratory (LLNL)); GLASCOE, Lee (Lawrence Livermore National Laboratory (LLNL)); WHARTON, Sonia (Lawrence Livermore National Laboratory (LLNL))

Presenters: Mr WIERSEMA, David (Lawrence Livermore National Laboratory (LLNL)); GLASCOE, Lee (Lawrence Livermore National Laboratory (LLNL))

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