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Project Summary

Addendum to the User's Manual for Single-Source (CRSTER) Model

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Addendum to TUPOS — Incorporation of a Hesitant Plume Algorithm

The existence of non-Gaussian plume behavior within the convective boundary layer has been pointed out and recently discussed at a national conference. In such cases the buoyant forces within the plume, although unable to penetrate the inversion, both resist downward motion and result in increased horizontal spreading. Because of its hesitancy for downwind dispersion, the author is using "hesitant plume" to refer to the above plume behavior. Briggs has suggested convective scaling parameterizations for surface crosswind integrated concentrations. Combined with parameterization of the crosswind spreading and assuming that the horizontal diffusion is Gaussian, allows estimation of concentrations on the horizontal plane. This addendum makes changes to the TUPOS model in order to better account for buoyant plumes that bump against, but do not penetrate, the inversion layer at the mixing height. The resulting algorithm is TUPOS-2.0.

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The complete report, entitled "Addendum to the User's Manual for Single-Source (CRSTER) Model," (Order No. PB 87-145 843/AS; Cost: $18.95, subject to change) will be available only from:
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