Development and Verification of a Lagrangian Model for Pollen Dispersion. (A03-arritt144555-Oral)

Authors:

- R.W.Arritt * - *Iowa State University*
- J.M.Riese - *Iowa State University*
- M.E.Westgate - *Iowa State University*

Abstract:

Controversy over genetically modified crops has led to increased need to evaluate and control pollen dispersion. To address this problem we have developed a Lagrangian model of pollen dispersion that allows each element of the pollen cloud to be tagged according to its source, release time, and other properties. This capability allows straightforward evaluation of source-receptor relationships. A further advantage is that the Lagrangian model can be used in arbitrary flow fields. The model is tested by comparison to field measurements of pollen deposition and is found to compare favorably both to observations and to results from a standard gaussian plume model. Another novel aspect of the model is inclusion of a viability submodel based on recent measurements of the effects of temperature and humidity on pollen viability.

Corresponding Author Information:

Raymond Arritt
Iowa State University
3010 Agronomy Hall
Ames, IA 50011

phone: 1-515-294-9870
fax: 1-515-294-2619
e-mail: rwarritt@iastate.edu

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