Computer Models
For
Fire and Smoke

Model Name:	ALOFT-FT (A Large Outdoor Fire plume Trajectory - Flat Terrain)
Version:	3
Classification:	Field Model
Very Short Description:	Calculates the rise and dispersion of smoke from a large outdoor fire blown by a non-zero wind
Modeler(s), Organization(s):	Kevin McGrattan, Howard Baum, Doug Walton, NIST
User's Guide:	On line via fire.nist.gov
Technical References:	NISTIR 5958, Smoke Plume Trajectory from In Situ Burning of Crude Oil in Alaska -- Field Experiments and Modeling of Complex Terrain. McGrattan, Baum and Rehm, Atmospheric Environment, Vol 30, No 24, 4125-4136 (1996)
Validation References:	Same
Availability:	Public domain, fire.nist.gov
Price:	Free
Necessary Hardware:	Windows based PC
Computer Language:	Fortran 77
Size:	about 10 Mbytes
Contact Information:	william.walton@nist.gov, kevin.mcgrattan@nist.gov
Detailed Description:	

ALOFT-FT™ (A Large Outdoor Fire plume Trajectory model - Flat Terrain) is a computer based model to predict the downwind distribution of smoke particulate and combustion products from large outdoor fires. Measurements and observations at experimental fires have shown that the downwind distribution of smoke is a complex function of the fire parameters, meteorological conditions and topographic features. To incorporate these features, NIST has developed a smoke plume trajectory model that solves the fundamental fluid dynamic equations for the smoke plume and its surroundings. ALOFT-FT is the public domain version of the model for flat terrain using windows based personal computers. The program contains a graphical user interface for input and output and a user modifiable database of fuel and smoke emission parameters. The output can be displayed as downwind, crosswind and vertical smoke concentration contours. Information on using the program is available with on-line help commands in the program.