

## SMOKE AND PARTICULATE EMISSIONS

### MODELING SUPERFOG: A CASE STUDY OF THE I-4 DISASTER OF 9 JANUARY 2008

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#### ABSTRACT

Early on 9 January 2008, superfog associated with a wildfire in central Florida drifted across Interstate 4. A series of pileups involved 70 vehicles, killed 5, and injured 38. Printed and video media accounts of the accidents were used to reconstruct events of the wildfire and the accidents. Plume drift history was recreated with the wind/smoke model, PB-Piedmont. Then the superfog model (SFM1) simulated fog formation, drift, and visibility. A possible scenario holds that after midnight, superfog was lofted over the expressway from the north side to where it settled to the ground on the south side of the road prior to the accident. Then the winds slowly shifted to blow the superfog back across the interstate. The data suggest that once the superfog was on the road, the accidents were unavoidable.

*Keywords:* accidents, fog, highway, smoke, wildfire.

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## PM<sub>2.5</sub> AND OZONE CONCENTRATIONS IN GEORGIA: ASSESSING THE AIR QUALITY IMPACT OF THE 2007 SOUTH GEORGIA WILDFIRES

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#### ABSTRACT

Wildfires are known to be a major source of air pollutants. In April 2007, several wildfires broke out in the southern part of Georgia around the Okefenokee National Wildlife Refuge. By the start of June these fires, along with other new ignitions, had spread into northern Florida, forming several fire complexes (Big Turnaround, Georgia Bay, and the Bugaboo) that combined for >600,000 acres (approximately 243,000 ha). This study examines air quality monitoring data from nine sites across Georgia to determine the fire's influence on PM<sub>2.5</sub> and ozone concentrations. Contrary to a number of previous studies, the South Georgia wildfires of 2007 did not produce dramatic changes in surface ozone concentrations, while particulate matter concentrations caused numerous violations of the National Ambient Air Quality Standards (NAAQS). Comparisons will be made between these events and a prescribed fire case from Georgia that did produce both significant PM<sub>2.5</sub> and ozone concentrations.

*Keywords:* air quality, GA/FL Wildfire, mercury, smoke plume.

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