

1086-35-1038

Andrew Getz* (agetz@njcu.edu), 32 Carlton Street South, Edison, NJ 08837, **Yi Ding** (yding@njcu.edu), 2039 Kennedy Blvd, Jersey City, NJ 07305, and **Zhixiong Chen** (zchen@njcu.edu), 2039 Kennedy Boulevard, Jersey City, NJ 07305. *Effects of wildfire smoke and fog on highway visibility as shown by a mathematical model.* Preliminary report.

We modeled the transportation of smoke particles from a wildfire and the presence of fog particles on a highway to determine the degree of decreased visibility for automobile drivers. Accidental wildfires and prescribed burns produce large PM_{2.5}(smoke particle) concentrations that travel to highways and lead to major motor vehicle accidents as a result of driver impairment, especially when fog exists. We studied the concentration of PM_{2.5} and fog particles in the driving view of automobiles on the highway by using numerical and analytic methods to solve diffusion-advection partial differential equations. The final concentration of smoke and fog particles after a period of wildfire burning was compared to a visibility range chart to determine the level of visual impairment for drivers on the highway. (Received September 18, 2012)