



IMAAC

Interagency Modeling and Atmospheric Assessment Center

REAL WORLD

Fire at Former Kmart Building Portland, Oregon

(RFI 23-0586U)

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Request Summary



Requestor	Mr. Randy Nattis, EPA Region 10
Contact information	503-628-9419 Nattis.randy@epa.gov
Request	Model the fire at a former Kmart building in Portland, OR
Employment	Real World
Hazards	<ul style="list-style-type: none">• Soot from a fire
Location	Portland, OR Coordinates 45.555°N, 122.535°W
Weather	High Resolution Numerical Weather Prediction: 3 km NAM from NCEP (CONUS)
Incident Date & Time	19JUL2023 0630 Local
Executive Summary	<ul style="list-style-type: none">• The soot from the fire is modeled to go towards the south-southeast for a distance of 18 kilometers.• A 2 hour cumulative dosage footprint is provided on slide 4. This footprint illustrates the general area of concern, and does not necessarily indicate adverse health effects unless that person is assumed to be standing still for 2 hours.



Modeling Assumptions

- Soot production from the burning material is modeled and represented in the following slides.
- Hazards from any specific chemical releases are not accounted for in this product, unless it is known a specific chemical is stored on site.
- The fire has been extinguished as of 19JUL at 0830 local time.
- The area of the burn is modeled to be 120,000 square feet. This will primarily affect the shape of the vertical profile.
- Modeling assumes the building is burning at a fixed rate, beginning at 19JUL2023 0630 until the time shown in the plots.
- Dosage plots are shown to provide the health hazard in the area. Transmission and vertical concentration plots are provided to model the vertical profile of the visual smoke.



Soot – Surface Dosage

Value	Description
Hazardous	Serious aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; serious risk of respiratory effects in general population. Everyone should avoid all physical activity
Very Unhealthy	Significant aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; significant increase in respiratory effects in general population. People with heart or lung disease, older adults, and children should avoid all physical activity outdoors; everyone else should avoid prolonged or heavy exertion.
Unhealthy	Increased aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; increased respiratory effects in general population. People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion; everyone else should reduce prolonged or heavy exertion.

Cumulative dosage values based on exposure to 2.5um particulate matter. Concentration values and descriptions taken from Pollutant-Specific Sub-indices and Health Effects Statements and Cautionary Statements for Guidance on the Air Quality Index tables, in Guidelines for Reporting of Daily Air Quality – Air Quality Index (AQI), USEPA, EPA-454/B-06-001, May 2006.



Soot – Vertical Profile – 0830 local

