

ALOHA®

A LOHA (Areal Locations of Hazardous Atmospheres) is a computer program designed to model chemical releases for emergency responders and planners. It can estimate how a toxic cloud might disperse after a chemical release—as well as several fires and explosions scenarios.

ALOHA is designed to produce reasonable results quickly enough to be of use to responders during a real emergency. Therefore, ALOHA's calculations represent a compromise between accuracy and speed. Many of ALOHA's features were developed to quickly assist the responder. For example, ALOHA:

- Minimizes data entry errors by cross-checking the input values and warning the user if the value is unlikely or not physically possible.
- Contains its own chemical library with physical properties for approximately 1,000 common hazardous chemicals so that users do not have to enter that data.

Key Program Features

- Generates a variety of scenario-specific output, including threat zone pictures, threats at specific locations, and source strength graphs.
- Calculates how quickly chemicals are escaping from tanks, puddles, and gas pipelines—and predicts how those release rates change over time.
- Models many release scenarios: toxic gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, vapor cloud explosions, and pool fires.
- Evaluates different types of hazard (depending on the release scenario): toxicity, flammability, thermal radiation, and overpressure.
- Models the atmospheric dispersion of chemical spills on water.

ALOHA is part of the CAMEO® software suite, which is developed jointly by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (EPA).

How ALOHA Works

ALOHA is designed to be easy to use so that responders can use it during high-pressure situations. A series of dialog boxes prompt users to enter information about the scenario (e.g., chemical, weather conditions, and the type of release). Detailed help is provided with each dialog box. The scenario information and calculation results are summarized in a printable, text-only window. Once ALOHA's calculations are complete, users can choose to display a variety of graphical outputs.

Threat Zone Estimates and Threat at a Point

A threat zone is an area where a hazard (such as toxicity or thermal radiation) has exceeded a user-specified Level of Concern (LOC). ALOHA will display up to three threat zones overlaid on a single picture. The red threat zone represents the worst hazard.

The Threat at a Point feature displays specific information about hazards at locations of interest (such as a school).

GIS-Compatible Output

ALOHA's threat zones can be displayed on maps in MARPLOT®, another program in the CAMEO suite.



A sample ALOHA threat zone estimate shown on a MARPLOT map (key locations of concern were added in MARPLOT).

Threat zones can also be shown in Google Earth or Google Maps using ALOHA's KML export feature—or in Esri's ArcMap by using MARPLOT to export the threat zones as shapefiles.

Getting ALOHA

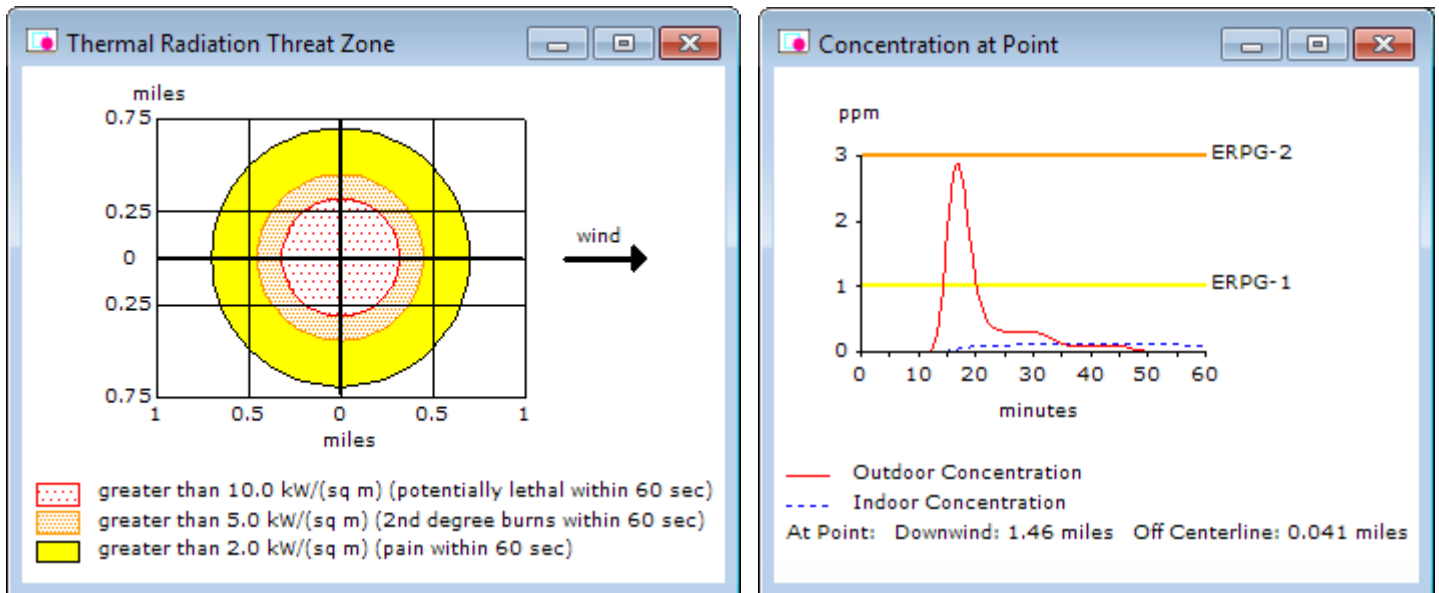
To download ALOHA, go to <https://www.epa.gov/cameo/aloha-software>.

ALOHA runs on both Windows and Mac computers.

ALOHA Contact Information

For additional information:
<https://response.restoration.noaa.gov/aloha>
orr.cameo@noaa.gov

Sample ALOHA Output



Some sample ALOHA output. On the left, the circular thermal radiation threat zone estimates for a BLEVE. On the right, a threat point graph shows the toxic concentration hazard over time at a specific location; the horizontal lines show how the concentration compares to the chosen toxic levels of concern.

NOAA's Office of Response & Restoration—Protecting our Coastal Environment

For further information about NOAA's Office of Response and Restoration,
please call (301) 713-2989 or visit our website at
<https://response.restoration.noaa.gov>

