



Interagency Modeling and Atmospheric Assessment Center



Who We Serve

During actual or potential atmospheric hazardous material (HAZMAT) incidents, the Interagency Modeling and

Atmospheric Assessment Center (IMAAC) provides federal, state, local, tribal, and territorial (FSLTT) first responders and decisionmakers with predictions of hazards associated with atmospheric releases. IMAAC coordinates and shares federal atmospheric dispersion modeling and hazard prediction products by its Core Member agencies to provide consistent federal plume modeling information to FSLTT requestors.

Services at a Glance

Emergency Support

No-cost activation. IMAAC can be activated for real-world emergencies involving chemical, biological, radiological, and nuclear (CBRN) threats and/or large-scale hazardous material atmospheric releases, at no cost to the requestor.

Modeling products. IMAAC provides modeling products and technical expertise for threat hazard interpretation at a moment's notice, regardless of the time of day or year.

30-minute response. IMAAC strives to provide an initial model product within 30 minutes of activation during real world events, followed by a final, interagency-vetted product.

24/7 access to experts. A Technical Operations Hub at the Defense Threat Reduction Agency (DTRA) is staffed 24/7 by CBRN subject-matter experts (SMEs).

Consistent federal modeling. The Technical Operations Hub consults with, coordinates, and deconflicts all Core Member plume modeling products to ensure first responders and decisionmakers receive consistent modeling information.

Wide range of product formats. IMAAC delivers modeling products in whatever form is needed by requestors, including GIS-portable formats (including KML and Shape files), PowerPoint slide decks, and PDF files.

Available on HSIN. IMAAC products are available on the Homeland Security Information Network (HSIN) IMAAC page.

Exercise and Planning Support

Models for notional threats. With advance notice (generally 30 days), IMAAC can support national- and local-level CBRN incident-planning activities and exercises by coordinating and producing models for notional threats.

Real-time training participation. IMAAC participates in training and exercises to simulate real-time interaction with emergency personnel.

IMAAC CORE MEMBERS

DEPARTMENT OF HOMELAND SECURITY / FEDERAL EMERGENCY MANAGEMENT AGENCY

DHS FEMA, through its CBRN Office, provides overall program management for the IMAAC program. The CBRN Office works collaboratively with other participating agencies to develop incident-specific hazard prediction products.



DEPARTMENT OF DEFENSE

DoD provides essential defense support to civil authorities in response to a crisis, natural disaster, or in support of a CBRNE event.



DEPARTMENT OF ENERGY

DOE/National Nuclear Security Administration is the technical lead for atmospheric plume modeling for radiological/nuclear events, using the National Atmospheric Release Advisory Center (NARAC) as its primary modeling center.



DEPARTMENT OF HEALTH AND HUMAN SERVICES

HHS provides expertise to assess the impacts to public health infrastructure and services. HHS is responsible for decontamination and long-term population monitoring after an event.



ENVIRONMENTAL PROTECTION AGENCY

EPA provides SMEs for chemical incident response and on-scene responders who supply ground-truth data to IMAAC models. EPA maintains the CAMEO/ALOHA modeling system for chemical incidents.



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA provides meteorological observations and expertise to designate the preferred model forecast to initialize IMAAC products. NOAA supports modeling for chemical incidents, radionuclides, volcanic ash dispersion, and field fire weather plume prediction.



NUCLEAR REGULATORY COMMISSION

The NRC provides technical expertise for nuclear power plant releases and uses the Radiological Assessment System for Consequence Analysis (RASCAL) as the primary modeling source.



FEMA

Contact IMAAC at
imaac@fema.dhs.gov

To Request an Activation
 Call 1-877-240-1187





How to Activate the IMAAC

Any FSLTT official can request an activation during current or potential real-world emergencies involving significant hazardous atmospheric releases.

To Activate the IMAAC and Request Assistance, Immediately Call 1-877-240-1187.

IMAAC in Action



Photo: Bob King; Duluth News Tribune

HUSKY ENERGY SUPERIOR REFINERY FIRE, SUPERIOR, WISCONSIN

In April 2018, an explosion at the refinery caused a fire that was largely suppressed but reignited later in the day when a leaking tank fed a second, larger fire. Responders allowed the second fire to burn for several hours before beginning large-scale suppression efforts, evacuated the nearby town, and put out the fire later that night. The FEMA NWC requested IMAAC activation during the original fire but cancelled the request when the fire appeared to subside. EPA Region 5 requested reactivation after ignition of the second fire. IMAAC first provided a product showing smoke plume and effects, based on EPA standards for soot exposure and health contours, and continued to provide plume models and products at 3-hour intervals to reflect shifting winds and updated source terms. IMAAC supported on-scene responders until officials on the ground declared deactivation the next day.



Photo: CBS News

ARKEMA CHEMICAL PLANT, CROSBY, TEXAS

In 2017, Hurricane Harvey flooded the Arkema Chemical Plant with several feet of water. The plant stored several organic peroxides that required cooling to prevent spontaneous instability. When the cooling system failed after flooding, IMAAC activated to support local first responders in preparing for potential hazards at the plant, including fire, explosions, and atmospheric releases of chemical agents. IMAAC provided direct technical support and recommendations to federal, state, and local responders and decisionmakers as they acted to manage the incident. Over 6 days, IMAAC provided 9 updates based on changing threats and weather conditions to help prevent loss of life and property. Updates included evacuation zone corroboration and plume models for various chemical releases.



Photo: Associated Press

CSX RAIL ACCIDENT, MARYVILLE, TENNESSEE

In July 2015, a CSX train had an accident in Maryville, Tennessee, during which a tanker car containing acrylonitrile caught fire. At the request of the Tennessee Emergency Management Agency, the FEMA National Watch Center (NWC) first activated IMAAC to respond to the acrylonitrile leak. After first responders told the Technical Operations Hub about the fire, the Hub's subject-matter experts quickly assessed that the chemical threat on scene changed (to hydrogen cyanide) and updated IMAAC products to reflect the changing threats, plume distribution characteristics, and dynamic weather patterns. The Hub also provided recommendations on the remediation plan and the timing to lift the evacuation order.

The IMAAC provides a single point for the coordination and dissemination of federal dispersion modeling products that represent the Federal position during actual or potential incidents involving hazardous atmospheric releases or other releases of hazardous materials.

FEMA CBRN: Preparing our nation to respond to chemical, biological, radiological, and nuclear catastrophes.



FEMA

For more information about the FEMA CBRN Office
 contact fema-cbrnoffice@fema.dhs.gov

