

INTRODUCTION TO IMAAC



FEMA

AGENDA

- What IMAAC is
- IMAAC Capabilities
- Benefits of Activating IMAAC
- IMAAC Activation Example
- IMAAC Activation Process
- Additional Resources
- Questions





What IMAAC Is

Interagency Modeling & Atmospheric Assessment Center



IMAAC Mission

Provide a single point for the coordination and dissemination of federal dispersion modeling and hazard prediction products that represent the Federal position during actual or potential incidents involving hazardous atmospheric releases.



The IMAAC Partnership

- Single point of contact for seven federal agencies
- Lead agency is dependent upon incident scenario
- Collaborative, net centric information environment



IMAAC Partner Agency Expertise

 <p>FEMA National Watch Center IMAAC Director</p>	 <p>Plume & Volcanic Ash Modeling Operational Weather & Atmospheric Modeling</p>	 <p>Nuclear Power Plan Accident Modeling</p>	 <p>Source Term Information Field Measurement Data When Possible</p>	 <p>Support to Combatant Commands & War Fighters Hosts IMAAC Technical Operations Hub</p>	 <p>National Atmospheric Release Advisory Center Radiological & Nuclear Models</p>	 <p>Emergency Support Function #8 Coordination Effects of Contaminants on Population</p>
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IMAAC Capabilities

IMAAC Supports



Real-World
Events

Exercises

Training



Suite of Modeling Tools

Radiological



DoD/DTRA

- HPAC

EPA

- CAMEO/A
LOHA
- HYSPLIT

Chemical/ Biological



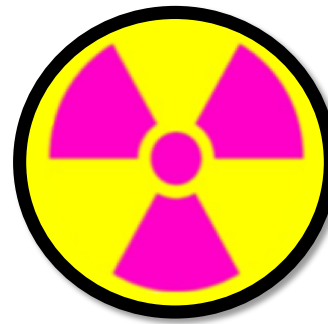
HHS

- Population
modeling

DoD/DTRA

- HPAC

Nuclear



DoE/NNSA

- NARAC

EPA

NOAA

NRC

- RASCAL

Explosive



DoD/DTRA

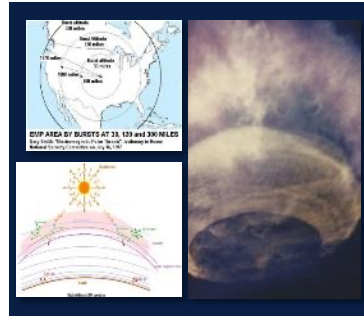
- HPAC
- VAPO



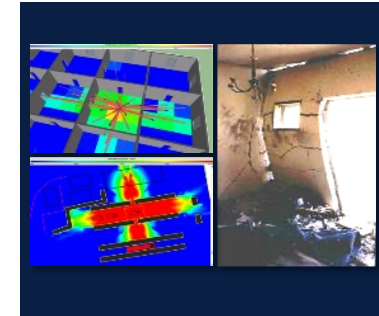
Types of Modeling



Chemical/Biological



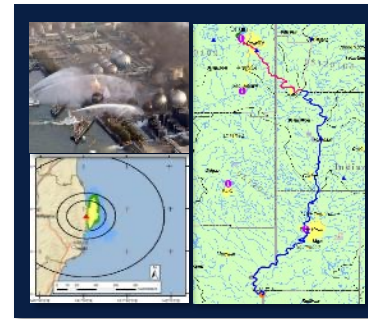
Radiological/Nuclear



Explosive



Waterborne



Cascading Effects





Benefits of Activating IMAAC

Why You Should Activate IMAAC

- Distributes hazard predictions to federal, state, local, territorial, and tribal response agencies to assure a **common operating picture**
- Provide expert, quality assured interpretation of hazard prediction models to requesting entities, including results, assumptions, and uncertainties
- Eliminates confusing and conflicting hazard predictions
- Integrates first-class scientific capability with the vast emergency response capacity of the federal government



Assisting Decision Makers

- IMAAC provides actionable information to inform emergency response decisions by:
 - Guiding safe approach routes and incident command post siting
 - Guiding field monitoring teams
 - Assisting in evacuation, sheltering-in-place, and relocation decisions
 - Informing need for personal protective equipment
 - Estimating potential impacts on and contamination of critical infrastructure
 - Estimating potential number of casualties

IMAAC will help requesting entities understand and analyze information to make critical incident decisions throughout the duration of an emergency.





IMAAC Activation Example

IMAAC was activated to respond to an incident at the Arkema Chemical Plant in Crosby, Texas

- Activated by Environmental Protection Agency Region 6
- Plant was inundated with several feet of water as the result of Hurricane Harvey
- Organic peroxides at the site required cooling to prevent spontaneous “instability”
- Inundation caused cooling systems to fail

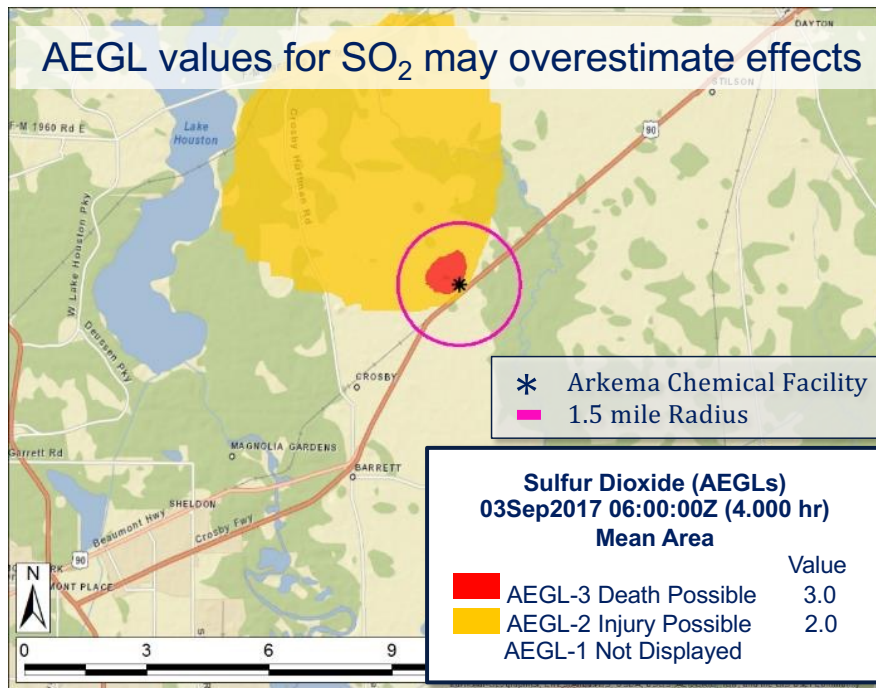


Unparalleled Incident Support

- IMAAC provided nine updates over the course of six days
- Products corroborating evacuation zones and locations of evacuation points were provided
- Updated products based on changing threats (e.g., different chemicals; burning vs. pools; and dynamic weather systems)
- Information about potential hazard interactions (e.g., hydrogen cyanide)
- Helped inform remediation plan and timing of lifting evacuation order



Arkema Activation: SO₂ Release

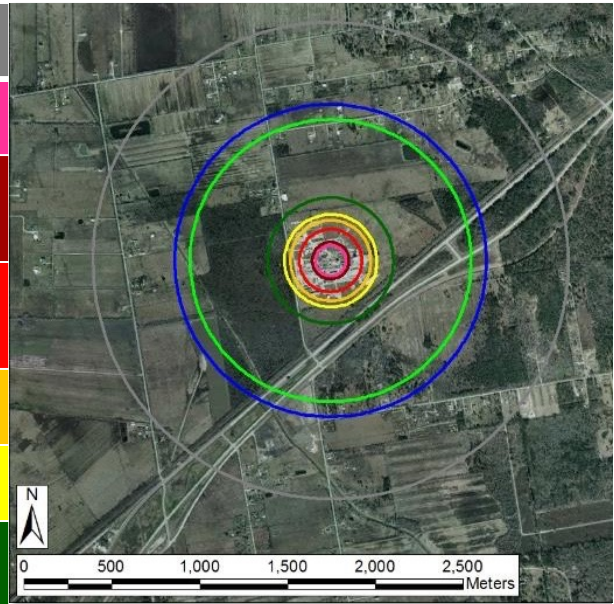


- Crosby, Texas
- Location: 29.9491° N/ 95.0211° W
- Event Time: 9 PM CDT, 02SEP2017
- Type: Sulfur Dioxide
- Amount: 32,000 lb. (16,000 lbs./hr.)
- Dissemination: Release over two hours
- Weather: 3 km NAM
- Model: HPAC 6.4
- Static Population Estimates: LandScan 2015



Arkema Activation: Human Injury & Structural Damage Contours

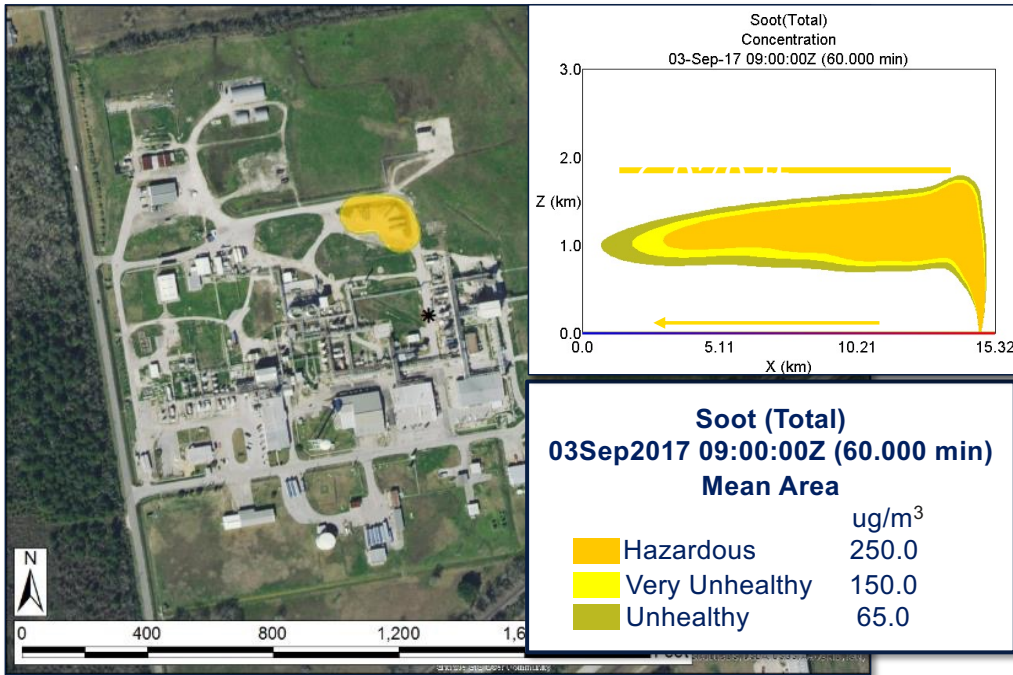
Overpressure and frag	Human Injury/Structural Damage
55 psi	100% fatalities Complete structure blowout
30 psi	Near 100% fatalities Destruction of primary structural components
10 psi	High fatality rate Severe damage to primary structural components
7 psi	Widespread fatalities, 50% eardrum rupture Damage to primary structural components
5 psi	Universal injuries Severe damage to light structures
3 psi	Serious injuries common Light damage to primary structural components, light structures damaged
1 psi	Light injuries occur Non-structural components damaged
0.5 psi	Temporary eardrum damage Glass breaks, non-structural components damaged
Hazardous frag	Probability of being struck in the open by primary/hazardous fragmentation is less than 1%



- Crosby, Texas
- Location: 29.9491° N/ 95.0211° W
- Amount: 200,000 lb. TNT-equivalent
- Model: BOOM (JIEDDO)



Arkema Activation: Soot Burning



- Crosby, Texas
- Location: 29.9491° N/ 95.0211° W
- Event Time: 3 AM CDT, 03SEP2017
- Type: Organic Peroxide
- Amount: Six containers (38,000 lb. each)
- Dissemination: Release over one hour
- Weather: 3 km NAM
- Model: HPAC 6.4
- Static Population Estimates: LandScan2015





IMAAC Activation Process

Activating IMAAC

- IMAAC is activated for current or potential real-world emergencies involving significant hazardous releases
- Any federal, state, tribal, territorial, and local official can request the activation of IMAAC
- IMAAC can be activated via phone by calling the IMAAC 877 or via email by emailing the IMAAC email address
- A phone call is the best way to ensure a rapid response



When you make the call, be prepared to provide as much information as possible

- **When** the incident occurred
- **Where** the incident is located
- **What** is happening, including the type of incident and material
- Your contact information

Call IMAAC

877-240-1187

IMAAC@FEMA.DHS.GOV

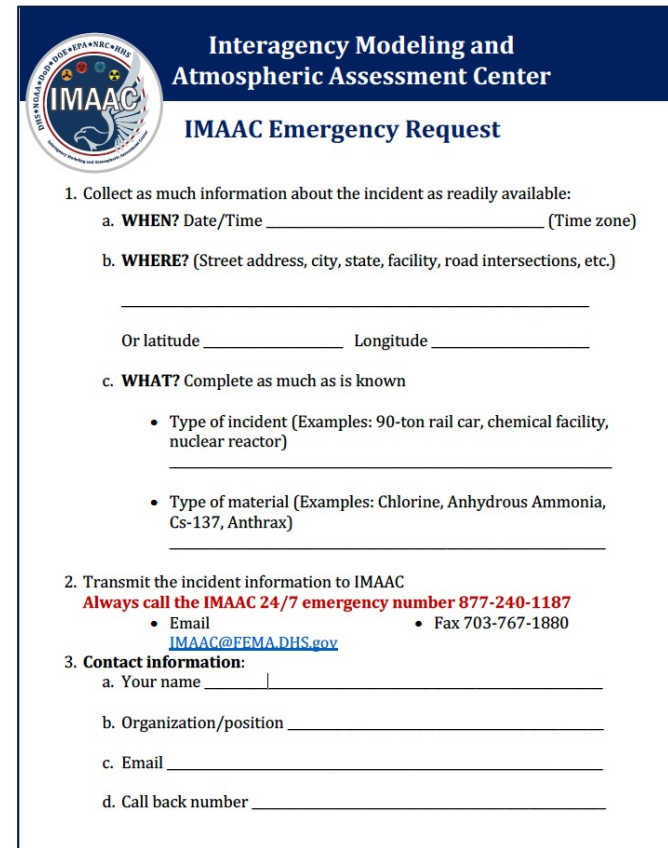


The Homeland Security Information Network

- Official system for trusted sharing of sensitive but unclassified information between federal, state, local, territorial, tribal, international and private sector partners
- Houses the IMAAC Emergency Request Form and IMAAC Community of Interest
- HSIN Helpdesk
 - 1-866-430-0162 (available 24/7)
 - HSIN.HelpDesk@hq.dhs.gov
 - Indicate you are requesting access to the IMAAC Community of Interest



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The image shows a form titled "Interagency Modeling and Atmospheric Assessment Center IMAAC Emergency Request". The form is divided into three main sections. Section 1, "Collect as much information about the incident as readily available:", includes sub-sections for "WHEN?" (Date/Time and Time zone), "WHERE?" (Street address, city, state, facility, road intersections, etc.), and "WHAT?" (Complete as much as is known). Under "WHAT?", there are two bullet points: "Type of incident (Examples: 90-ton rail car, chemical facility, nuclear reactor)" and "Type of material (Examples: Chlorine, Anhydrous Ammonia, Cs-137, Anthrax)". Section 2, "Transmit the incident information to IMAAC", includes the instruction "Always call the IMAAC 24/7 emergency number 877-240-1187" and provides contact information for Email (IMAAC@FEMA.DHS.gov) and Fax (703-767-1880). Section 3, "Contact information:", includes sub-sections for "Your name", "Organization/position", "Email", and "Call back number".

Interagency Modeling and Atmospheric Assessment Center
IMAAC Emergency Request

1. Collect as much information about the incident as readily available:

a. **WHEN?** Date/Time _____ (Time zone)

b. **WHERE?** (Street address, city, state, facility, road intersections, etc.)

Or latitude _____ Longitude _____

c. **WHAT?** Complete as much as is known

- Type of incident (Examples: 90-ton rail car, chemical facility, nuclear reactor)

- Type of material (Examples: Chlorine, Anhydrous Ammonia, Cs-137, Anthrax)

2. Transmit the incident information to IMAAC
Always call the IMAAC 24/7 emergency number 877-240-1187

- Email IMAAC@FEMA.DHS.gov
- Fax 703-767-1880

3. **Contact information:**

a. Your name _____

b. Organization/position _____

c. Email _____

d. Call back number _____

IMAAC Activation Sequence

- 1 IMAAC activated**
- 2 Initial IMAAC products developed**
- 3 Initial IMAAC products distributed**
- 4 IMAAC coordination teleconference**
- 5 IMAAC deactivated**



IMAAC Technical Operations HUB



- Managed by the Defense Threat Reduction Agency (DTRA)
- Coordinates the production and dissemination of IMAAC plume modeling products
- Staffed 24/7 by CBRNE subject matter experts
- Turns around requests quickly
- Utilizes numerous decision support tools to assist customers



Personnel are accredited with MD, PhD, ScD and MS degrees



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Additional Resources

IMAAC Digital Media Toolkit

- Use the IMAAC toolkit to post social media messages to your stakeholders, create flyers, or utilize sample messaging in your newsletters and other communications.
- Includes:
 - Talking Points
 - Sample Social Media & Newsletter Content
 - Graphics
 - Web Assets
 - Customizable Content
- <https://www.fema.gov/emergency-managers/practitioners/hazardous-response-capabilities/imaac/digital-media-toolkit>





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Questions?

Presenter Contact Information

- Contact Information





**ALWAYS
THERE
WHEN YOU
NEED IT!**

FEMA.GOV/IMAAC

IN REAL-WORLD HAZMAT EMERGENCIES, ACTIVATE IMAAC 24/7 | (877) 240-1187