



IN-PREP

AIR

1st TTX - Impact Assessment in terms of Injuries and Casualties



AIR's Terrorism Modelling Capabilities



86 countries



140 cities



5,290 targets



Rate of injury and fatality
Probability of infection

Chemical

- Sarin
- VX Nerve gas

Biological

- Anthrax
- Small pox

Radiological

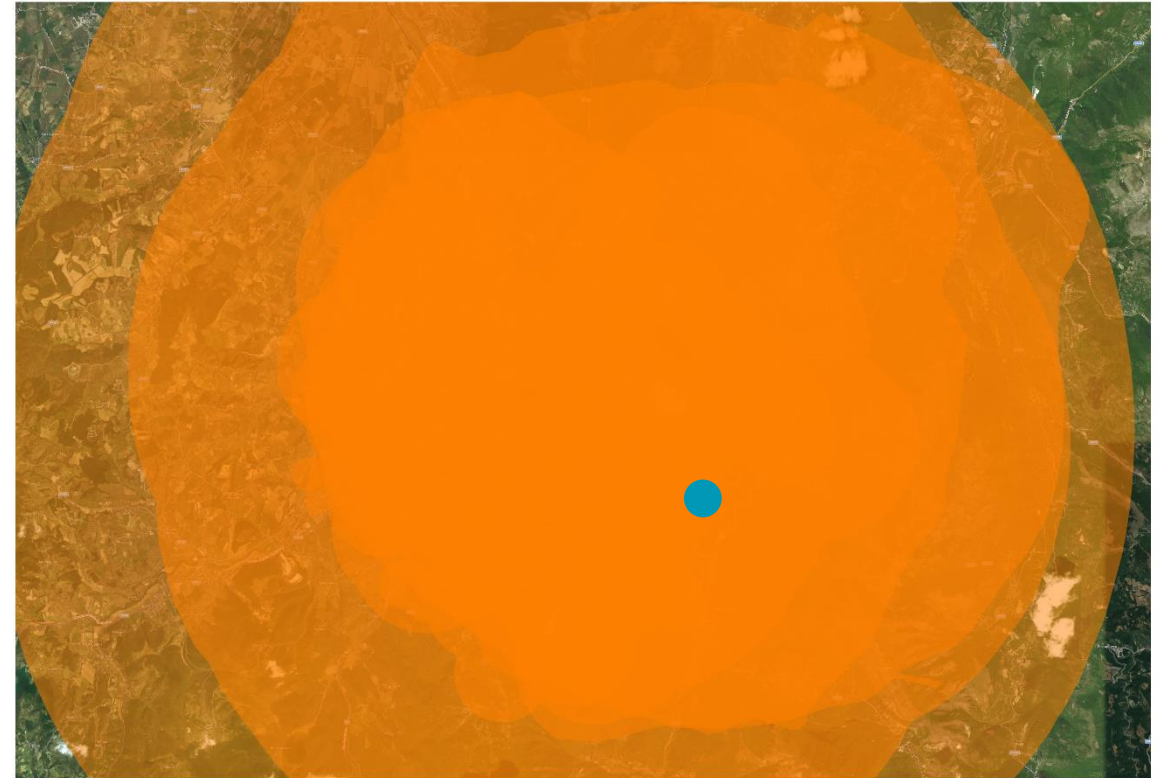
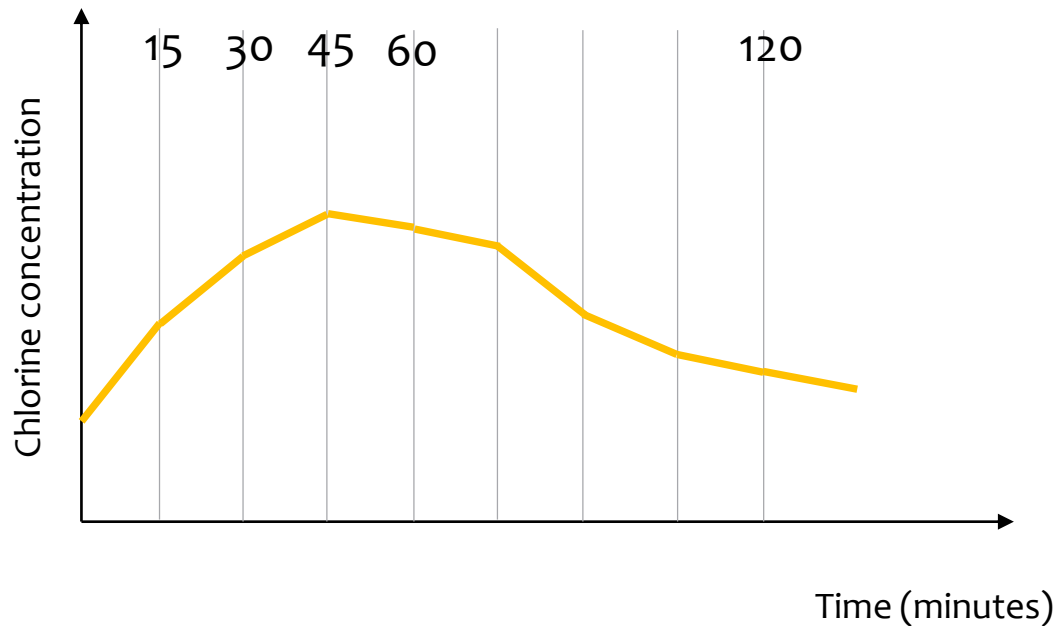
- Cesium 137
- Cobalt 60

Nuclear

- Suitcase
- 20 kiloton
- 50 kiloton

First TTX – AIR’s Approach to Impact Assessment (1/3)





1. Use plume modelling results to understand the temporal evolution of Chlorine concentration at each location



First TTX – AIR’s Approach to Impact Assessment (2/3)

2. Understand the effects of Chlorine at various concentrations and exposure times

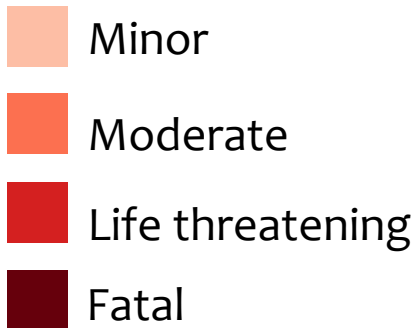


-  Minor
Notable discomfort, irritation, or certain asymptomatic nonsensory effects. Reversible effects upon cessation of exposure.
-  Moderate
Irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.
-  Life threatening
Life-threatening adverse health effects or death
-  Fatal
Immediate death

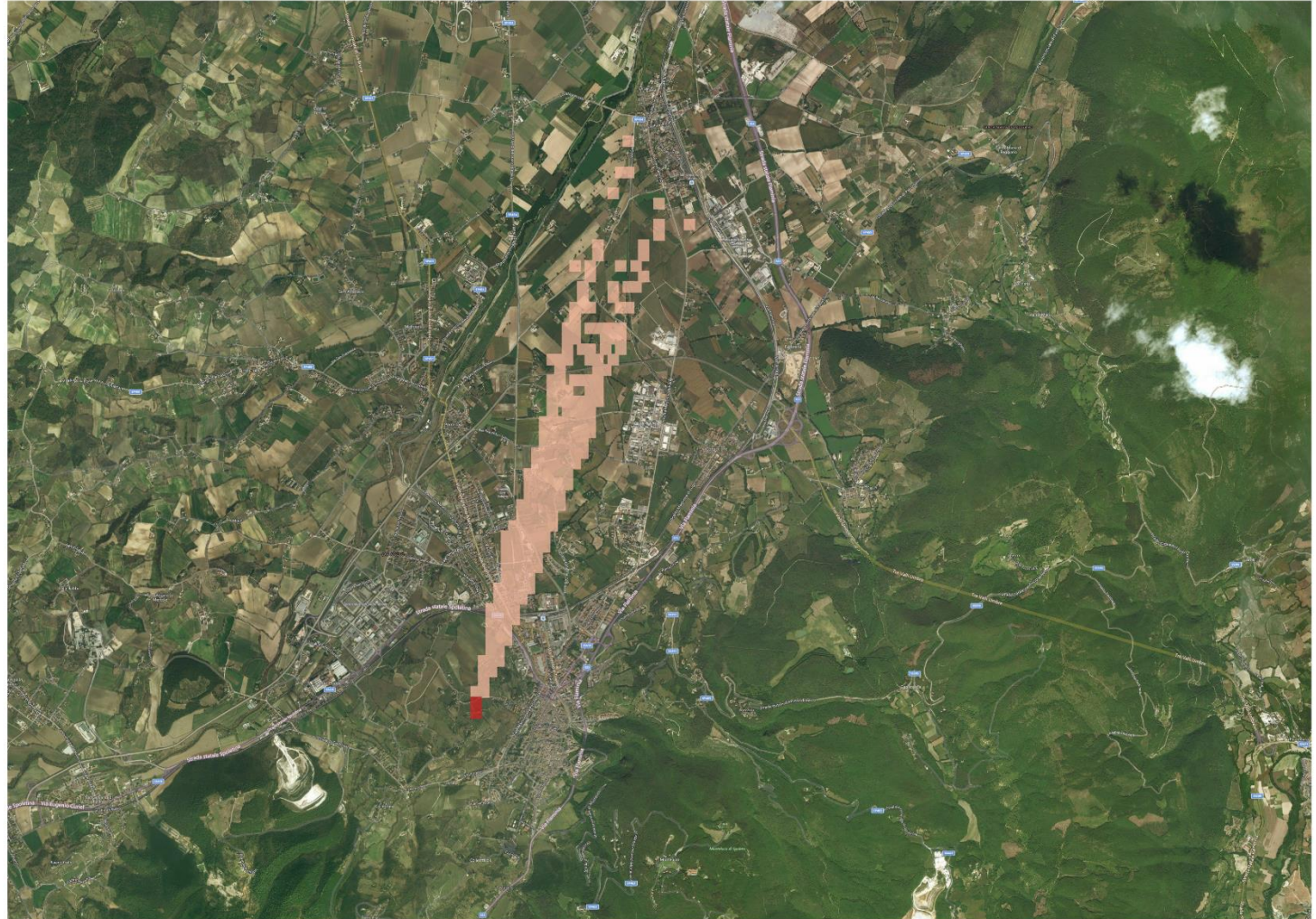
First TTX – AIR’s Approach to Impact Assessment (3/3)

Example risk maps:

Scenario on 11 July 2018,
release of 720kg of
Chlorine



90 minutes



How Can These Results Help Decision-making and Collaborative Response Planning?

Stakeholders:

- Local Government
- Urban and Forest Planning
- Public Services
- Healthcare services
- Hospitals
- Civil Protection
- Fire Department
- Other Emergency Responders
- State Police and Military
- Legal System

Considerations:

- How many people do we expect to be affected?
- Are fatalities expected?
- How should resources be prioritized?
- Which areas should be prioritized to avoid effects from longer exposure times?
- What's the critical response time?
- Which areas should be “sealed off”?