



ATD Research Needs and Priorities

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Address Two of the Four Questions

- Do we sufficiently understand the requirements to prioritize the research needs?
- How do we best coordinate and collaborate on our research needs?

Requirements

- An OFCM Joint Action Group considered three periods:
 - Pre-event planning
 - Real-time response and mitigation
 - Post-event assessment and recovery
- Different needs for the different time periods
 - Speed of input and execution
 - Contained detail

Requirements

- For planning, ranges of possibilities must be considered
 - More detail allowable
 - Longer runtimes not important, except if it reduces the size of the range considered
 - Ranges of source terms, weather, locations, population distributions

Requirements

- For response, time is of the essence
 - Decisionmaking for evacuation and sheltering
 - Source term is often unknown (reactor accidents the exception)
 - Cannot require lots of, or unavailable, input
 - Run times must be minutes

Requirements

- In the aftermath, there will be questions:
 - What was my exposure?
 - Are you absolutely sure that I did not receive an exposure?
- Need knowledge about, and models for, local effects
- Experts should include as many of the various effects as are within the state of computational art

Who Should Decide?

- Modelers should be involved in decisions about how much detail is to be included in the models
- OFCM could coordinate the development of aftermath models
 - Increase in effectiveness and efficiency
- Decisionmakers must be involved in deciding about fast-running codes
 - Which way do they want a code to fail? Too high or too low? Too wide or too narrow?

Research Needs as Determined by JAG

- Source characterization
- Chemical mixtures
- Hazardous source collaboration and coordination
- Limits of predictability
- Measurement strategies
- Urban canopy characterization and dispersion
- Planetary boundary layer

More Research

- PBL modeling errors
- Costal influences
- Concentration variability
- Deposition rates
- Resuspension
- Cross-media interactions (food chain)
- Chronic health effects

And Even More

- Complex terrain
- Indoor-outdoor interactions
- Nocturnal boundary layer
- Land surface models (moisture diurnal cycle effects)