

Session 1C: Handling Atmospheric Information in Some Key Meteorological Disciplines—Technological Hazards

Co-chairs: *Mr. Bruce Price, Deputy Director, Technological Hazards Division, FEMA*

Mr. Bruce Hicks, Director, Air Resources Laboratory, Office of Oceanic and Atmospheric Research

Rapporteurs: *Mr. Thomas Fraim, Office of the Federal Coordinator for Meteorology*

*Mr. Michael Neyland, Office of the Federal Coordinator for Meteorology
(Science and Technology Corporation)*

Synopsis

One aspect of the general guidance provided to the breakout groups was to consider what atmospheric information (observations and products) associated with their particular discipline might be shared with the broader community. A second aspect was to consider what atmospheric information associated with the wider community might be useful for their area along with any impediments preventing the sharing of the information.

For technical hazard events, other than at fixed sites such as nuclear power plants where site-specific observations are routinely taken, atmospheric information is generally not available beforehand. Consequently, little information is available for the wider community. However, when an event occurs, information is needed from the wider community; specifically, information on winds, temperatures, and stability. The information is needed for dispersion predictions of potentially hazardous substances. Depending on where the event takes place, detailed terrain and building morphology information will also be needed.

Given the nature of a technical hazard event, the group envisioned a layered or phased response. The initial assessment needs to happen quickly so that appropriate actions can be taken to protect lives and property. This might mean a single observation fed into a simple dispersion model to give an initial plume forecast for first responder decision makers. As time goes on more sophisticated models and higher resolution atmospheric information will be needed to refine the plume forecasts. The group also recognized that more thorough models could be used during planning and after-event assessment/clean-up activities than during the emergency response phase.

Several key issues were identified during the course of the group discussion:

- Atmospheric information routinely observed at fixed sites should be made available to the broader community.
- A technical hazard event is very sensitive to atmospheric conditions; and, depending on where the event takes place, the density of current atmospheric information may not be

adequate. The provision of rapid-deployment measurement capabilities to augment routine observational data sets on an as-needed basis appears to be an aspect well worthy of future attention. Many agencies have special capabilities that would be relevant.

- For many potential technical hazard events, more than the standard meteorological information will be required. Data for such things as turbulence intensity, atmospheric stability, and boundary layer depth will also be needed.
- The Weather Forecast Offices (WFOs) will play a key role in the initial response to a technical hazard event. The flow of information to and from the WFOs will be critical in responding to an event.
- Information (data) overload and adequate training for the decision-maker are important considerations. Training on model default assumptions and the use of decision aids in contrast to detailed model output should be considered.