

**Session 1B: Handling Atmospheric Information in
Some Key Meteorological Disciplines—Urban Meteorology**

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Synopsis

1. Opening Remarks:

- Dr. Rogers:
 - Dr. Rogers summarized information from the “10th Prospectus Team of the U.S. Weather Research Program: Forecast issues in the Urban Zone”. Urban needs for specialized weather information derive from the diverse user groups and population sectors found in urban areas. These groups include the following:
 - ◇ Water supply and sewage facilities
 - ◇ Electric power industry
 - ◇ Fuel suppliers—natural gas, fuel oil, coal, gasoline
 - ◇ Transportation sectors—aviation, marine and surface
 - ◇ Emergency response agencies
 - ◇ Regulatory agencies
 - ◇ Public safety agencies
 - ◇ Insurance agencies
 - ◇ Health care providers
 - ◇ Recreational facilities
 - ◇ The general public
 - He also reported on USWRP Urban Meteorological forecasting issues (no priority order):
 - ◇ Improved observing systems
 - ◇ Improved access to real-time weather information
 - ◇ Improved tailoring of weather data to the specific needs of individual user groups
 - ◇ Mesoscale forecasting in support of emergency response and air quality
 - ◇ Visibility and icing for transportation
 - ◇ Winter storms
 - ◇ Convective storms

- ◊ Intense/severe lightning
 - ◊ The impacts of large urban areas on the location and intensity of urban convection
 - ◊ Quantify and reduce uncertainty in hydrological, meteorological, and air quality modeling
- Dr. Ching:
 - Dr. Ching described current air quality management activities, and thresholds and risk-based strategies for toxic materials. He discussed neighborhood-scale modeling and gave examples of modeling meteorological fields in urban areas showing sensitivity of the predicted wind fields to the introduction of urban building morphological structures. He noted that databases for evaluation of urban and fine scale models are extremely limited. The desired conceptual features in next generation research and operational meteorological models for urban areas include multiscale resolution capabilities and comprehensive land surface and building data.

2. Group Discussion:

- Following wide-ranging discussion on urban meteorology topics the group agreed on the findings listed below. Recommendations are given in paragraph 3.
 - Recognize that today's technology can provide the database for tomorrow's very high-resolution numerical models of the urban atmosphere. (Examples are building morphologies; real-time emissions)
 - There is a corresponding need for new observational databases with suitable definition to evaluate and drive the next generation of high-resolution models.
 - Many stakeholders need real-time data. (Example: Transportation)

3. Recommendations:

- Develop a forum for urban stakeholders (municipal, state, federal, private) to identify common requirements for information and data (e.g., applied to intelligent transportation, homeland security, risk assessment and human exposure).
- Develop a "Data Exchange" mechanism with incentives to facilitate the creation and exchange of data information.
- Promote understanding among users of the potential economic and social benefits of improved urban weather information.