

## WORKSHOP SUMMARY/ACTION PLAN/NEXT STEPS

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### SESSION V

**Background:** The goal of the workshop was to bring agency representatives together to present requirements and capabilities, to address technical barriers and to foster coordination in the development and operational use of dispersion models. Specific objectives included (1) stating current modeling requirements and capabilities, (2) specifying new requirements and unmet needs, (3) describing existing methods for the validation, verification and approval of current models, (4) describing a process for establishing model subsets for specific applications, (5) finding solutions to agency identified technical barriers, and (6) identifying opportunities for leveraging model development and model validation, verification and approval methods.

**Results:** The workshop highlighted the wide range of requirements for dispersion modeling and also the wide range of capabilities that exists within the federal agencies. It also highlighted the need for continued coordination between the agencies to ensure that resources earmarked for modeling research and development are applied effectively so key technical barriers or knowledge gaps are overcome. Additionally, the breakout sessions on model verification and model subsets made progress in meeting their objectives, however more work needs to be done to complete the process. The model verification group described current methods used in the agencies but further work is needed on developing a common framework. The model subsets breakout session proposed a process for classifying models based on a set of model characteristics but again more work is needed in order to complete the process. Both model verification and model subsets should be addressed further by the Office of the Federal Coordinator for Meteorology (OFCM) and the Joint Action Group for Atmospheric Transport and Diffusion (JAG/ATD).

**Cross-Cutting Concerns:** A number of cross-cutting issues and concerns were identified during the workshop including the need for:

- Improved temporal and spatial resolution.
- Improved urban modeling capabilities.
- Taking a probabilistic approach to dispersion modeling since uncertainty cannot be eliminated.
- Improved source term estimates.
- Improved handling of the lower boundary condition which is a complex problem and is hampered by the sparsity of data.

- Training to create a sophisticated user who can interpret probabilistic model output.
- Tailored model verification and choosing the right model to cover a spectrum of applications from immediate response to planning and design.
- Transition technology to operations and avoid duplication through leveraging, collaboration, and a systematic exchange of agency activities.

**Action/Next Steps:** In addition to the above issues and concerns, the following actions/next steps are considered necessary in order to continue the momentum generated as a result of this forum:

- Publish proceedings of the workshop in August 2000. (OFCM)
- Report the results of the workshop to the Committee for Environmental Services, Operations and Research Needs (C/ESORN) at their August meeting. (JAG/ATD)
- Report the results of the workshop to the Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR) at their next meeting. (JAG/ATD)
- Continue exploration of relevant requirements and capabilities using the Joint Action Group for Atmospheric Transport and Diffusion. (OFCM, JAG/ATD)
- Develop plans for addressing the scientific issues associated with technical barriers as well as model verification and model subset methods based on the recommendations of the panel and breakout sessions. (JAG/ATD, September 2000)
- Determine how the guidelines developed by the Department of Defense and Subgroup D-22 of the American Society for Testing and Materials (ASTM) may be applicable to model verification. (JAG/ATD)
- Conduct a follow-on workshop in the January-March 2001 timeframe to focus on specific scientific issues seen as barriers to model development. (OFCM)
- Invite participation by the stakeholders who attended the workshop in the activities of the JAG/ATD. (OFCM)

It was also recommended when the Model Directory (FCM-I3-1999) is updated, that consideration be given to incorporating a model classification scheme similar to the one begun during the breakout session on model subsets. Also, it was recommended that a listing of available data sets be included in the Directory. The inclusion of data set references would be useful for model evaluations.