GIS Birds of a Feather Summary
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The "Birds of a Feather" session on Geographic Information Systems was well attended and several issues important to GIS, its users, and government agencies were discussed. The session started with a discussion of *uncertainty assessment and communication*. It was agreed by all participants that there is a need to accurately account for error propagation when dealing with geospatial datasets from various frequently heterogeneous sources, and to consider uncertainty dissemination. In order to present uncertainty data in a more palatable fashion for expert and non-expert users, visualization can be helpful.

From here the discussion moved to *metadata* as a tool for communicating uncertainty and other background information about a dataset. Session attendees remarked on the importance of metadata and the confusion surrounding metadata availability, and level of complexity and detail. Structures such as hierarchical metadata can be useful, since this would allow the user to see only that metadata which is needed at any particular level of problem solving.

Because there are so many new ways of collecting GIS data, such as GPS and other mobile devices, the discussion then turned to what is becoming important on the cutting-edge of *sensor-related advancements* with respect to geospatial information. Several issues were discussed, among them how to notify non-experts who may be collecting geospatial data (e.g. via a mobile phone camera) as to its potential uses and limitations, and how to be able to use this data in real-time situations. All attendees agreed that the ideal GIS would be always up-to-date, and would include tools to let the user know of the applicability of the data presented for a particular application. The ability to look at past events and use this information to predict future occurrences would be extremely useful, especially in view of the present emphasis on homeland security.

The session ended with a general discussion of how the government could play a role in the achievement of these goals. Agencies need to be shown why they should invest in innovative research on GIS-related problems. It may make sense to develop geospatial research centers, so that individual efforts and knowledge are consolidated in a more efficient, influential, and visible manner. This has been done in the past with supercomputers, and may be repeated in the future with geospatial information, for instance in NSF's upcoming cyberinfrastructure initiative.