

Aurora - A Multi-national R/WIS Program

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*Yahoo
↓
ITCIP*

*Accepted new
protocol for R/WIS
check!*

*SIROP
Snow/ice cooperative program*

ABSTRACT

http://aurora.org.org/

Aurora is a program of collaborative research, development and deployment in the field of road and weather information systems (R/WIS), reflecting the interests and needs of governmental agencies and industrial groups. The program, launched in 1996, brings together a number of U.S., Canadian, and Swedish agencies. The Aurora vision is to deploy R/WIS to integrate state-of-the-art road and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures. This will facilitate advanced road condition and weather monitoring and forecasting capabilities for efficient highway maintenance, and the provision of real-time information to travelers. This paper describes the Aurora program and current collaborative projects.

In essence, the Aurora program was established by a group of agencies who wished, first, to maximize their individual resources by pooling R/WIS research and development funds, and second, to ensure that the R/WIS systems, protocols and practices put into place in their jurisdictions were compatible to the greatest extent possible with those of other agencies. It is hoped that the potential cost and operating efficiencies which can be gained by working together in areas of joint interest should benefit not only Aurora participants but also other organizations responsible for R/WIS.

Aurora is particularly notable for bringing together agencies from both the North American continent and Europe in a collaborative enterprise. The members of Aurora include the state Departments of Transportation of Iowa, Minnesota, and South Dakota; Environment Canada, Canada's national weather service; the Ontario Ministry of Transport; and the Swedish National Roads Administration (SNRA). Aurora also works closely with research organizations already teamed with member agencies, including the University of North Dakota (UND), and the University of Gothenberg in Sweden. Agencies who participate as "observers" include New York State DOT, North Dakota DOT, and the U.S. National Oceanic and Atmospheric Administration (NOAA) Forecast Systems Laboratory (FSL). The U.S. Federal Highway Administration (FHWA) also supports Aurora as an observer. Both

national and regional FHWA personnel provide input to the program. When Aurora was formed, several formal goals were established, as follows:

- to provide and / or improve R/WIS information dissemination to both transportation providers and users;
- to improve the efficiency of maintenance operations, primarily costly winter maintenance activities;
- to reduce potential weather-related construction activity delays via improved R/WIS information;
- to support and enhance information dissemination activities in the rural environment;
- to reduce traffic congestion delays in urban areas due to adverse weather-related conditions; and
- to aid in the development of seamless maintenance operations and information dissemination R/WIS programs.

The Aurora goals helped shape the technical scope of the program, and within the program's 1996-1997 workplan several research areas of interest and specific projects were targeted as priority activities. The selection process involved combining the ratings of member agencies who considered the degree to which activities would meet their own goals. Project areas of interest to Aurora include:

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| * decision support systems | * meso-scale modeling |
| * architecture | * micro-scale modeling |
| * standards (hardware, communications) | * information outreach |
| * equipment evaluations | * road condition monitoring |

Projects selected for funding in the 1996-1997 fiscal year are as follows:

- **expert systems for decision support.** This project will develop a system to provide decision support capabilities to help winter maintenance personnel take appropriate preventative measures needed in different weather conditions.
- **R/WIS communications standards.** This project involves providing support to the ongoing standards development process for R/WIS communications and protocols.
- **automated low visibility detection.** This project aims to develop a method of analyzing the amount of contrast in images captured by CCTV cameras to detect and categorize reduced visibility conditions.
- **adaptation of the Local Climatological Model for use in other locations.** This project will determine whether and how a model calibrated for one region can be adapted for use elsewhere.
- **institutional issues committee.** Within this project, the fundamental institutional issues associated with the development and operation of road/weather information systems will be identified, and education and outreach efforts will be performed.
- **standardized weather and road condition information presentation.** This project will identify ways of improving the consistency and usability of road and weather information.

Further details of these current projects will be provided in the full, final paper, as will details of new projects currently being developed for the 1997-1998 program year.