

## **Wireless Sensors and Audience Discussion**

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The use of electronic instruments for field monitoring is not a new concept. However, there have been significant advances in wireless technology, such that the technology now exists to develop sensors as a wireless network distributed over a wide area. This ever improving technology is opening the door to new possibilities for continuous field monitoring of environmental conditions. Ground-based sensors and sampling networks - from air quality sensors, to water quality/flow gauges, to well monitoring sites, etc. - are currently used to remotely collect environmental information. The potential use of this technology for surface water monitoring and assessment is worth consideration and further development.

Some of the positive benefits of applying wireless sensor technology to surface water monitoring:

- Reduces travel cost and equipment expenses incurred during large sampling campaigns
- Reduces cost of lab analysis and chemical lab waste
- Reduces energy consumption from transportation, lodging, shipping, and storing of samples
- Provides a new approach for evaluating environmental compliance or enforcement.
- Surface water environmental information could be generated in real-time
- Provides “ground-truthing” for aerial/satellite monitoring efforts

The Forum on Environmental Measurement (FEM) is a committee of senior EPA managers which develop and guide the EPA measurement community in validating and exploring new methods for environmental monitoring. FEM is looking for opportunities to develop new applications and technologies, including providing resources to support implementation. This session will introduce the overall concept and project to the SWiMS attendees, discuss some of the current work in this area, and solicit interested participants. States may have already dabbled in this area and gained some experience and insight. To prepare for this session, attendees are encouraged to review the following information and think about potential applications, as well as bring their own experience to the session for panel and audience discussion.

Listed below are some examples of local, real-time monitoring programs from Region 2. Some of the examples are sensor-based. Many of them have been established in conjunction with universities, water utilities, and local, state and federal partners.

<http://www.state.nj.us/dep/wms/bmw/sensorhome.htm>

<http://www.ecostudies.org/hrecos/>

[http://intranet.epa.gov/geoss/eos/epa\\_eos.html](http://intranet.epa.gov/geoss/eos/epa_eos.html)

<http://cfpub.epa.gov/safewater/watersecurity/initiative.cfm>

Questions for the Audience:

- Are there any surface water quality applications in your state, tribe or organization which could benefit from real-time, continuous monitoring of parameters?
- Are there any current applications where routine sampling could be replaced by wireless sensors?
- Do you have a specific need for real-time surface water monitoring on a continuous or temporary basis?
- Have you already explored the above and tried some of the current technology? What was your experience? Did it work? What were the benefits and short comings?

If you answered yes to any of the above questions, please consider bringing your ideas and/or experience do this session for the audience discussion.