

A Sensor Management Tool for Use with NASA World Wind
 2009 Topic S6.02 Earth Science Applied Research and Decision Support
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 Proposal No. 09-2 S6.02-8720

World Wind Visualization
 of Sensor Data Sites

SMT

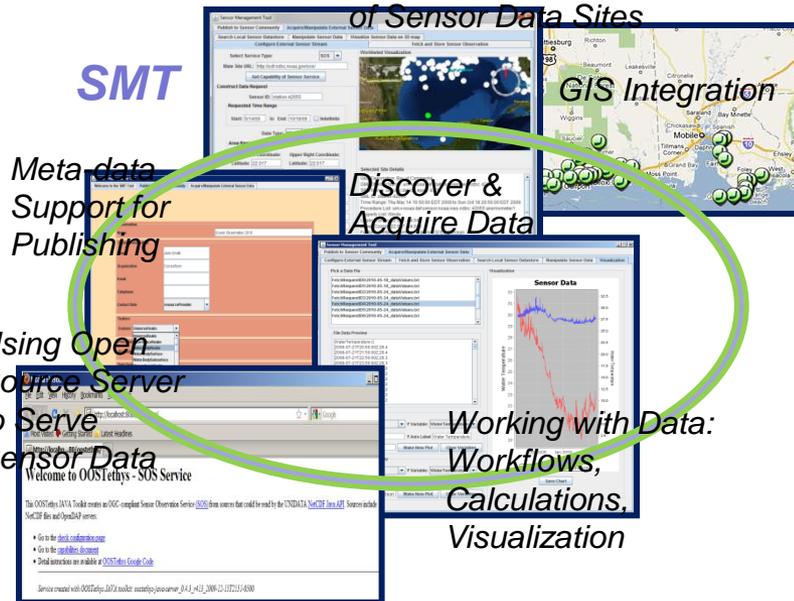
Meta data
 Support for
 Publishing

Discover &
 Acquire Data

GIS Integration

Using Open
 Source Server
 to Serve
 Sensor Data

Working with Data:
 Workflows,
 Calculations,
 Visualization



Identification and Significance of Innovation

The number of sensors that are deployed continues to increase for scientific, commercial and intelligence related applications. NASA and NOAA are generating large quantities of sensor data involving earth, oceans and weather observations. US intelligence and commercial endeavors are also generating vast amounts of sensor data, gathered from sources ranging from satellites to vehicles. Scientists and operations personnel need support to access, work with and publish sensor data.

Intelligent Automation Inc (IAI) is proposing to support the data access and utilization needs of the individual researcher / scientist and the emergency incident commander through development of an innovative Sensor Management Tools (SMT). The innovative features of SMT are:

- 1) Targeted for diverse user categories: individual Scientist/Researcher and Emergency Incident Commander.
- 2) Standards based functionality, including use of OGC Sensor Observation Service, Sensor Alert Service and other relevant Sensor Web Enablement Standards,
- 3) Designed with modular functionality and configurable for different user categories with support for personalization,
- 4) GIS integration,
- 5) Is an open source tool and integrates other open source tools including NASA World Wind and the OOSTethys Server.

Expected TRL Range at the end of Contract (1-9): 3-6

Technical Objectives and Work Plan

Objective 1: Incorporate the Use of Relevant Standards into the Sensor Modeling Tool’s design and implementation.

Objective 2: Develop a Robust Sensor Management Tool that Incorporates a Plug-in Architecture to Support User and Domain Driven Extensibility and Integrates with other Open Source Tools.

Objective 3: Provide View Configurability in the Sensor Management Tool to Support Scientist/Researcher Needs and Emergency Operations Manager Needs.

NASA and Non-NASA Applications

NASA applications

1. Sensor Management Tool use in accessing and managing data relevant to multiple Earth Science and Planetary Science studies, including: (a) ocean studies (including Gulf of Mexico efforts), (b) hurricane studies, (c) climate and ecology studies, (d) planetary science studies.
1. Sensor Management Tool use for managing data from UAVs in NASA – led technology development for western region firefighting mission efforts

Non- NASA commercial applications

1. Use of Sensor Management Tool with Emergency Incident Commander Views for FEMA applications.
2. Use of Sensor Management Tool for accessing, retrieving and managing data for DoD Surveillance applications and for Homeland Security Infrastructure monitoring applications.
3. Use of Sensor Management Tool regarding data related to agriculture monitoring or ecology monitoring
4. Use of Sensor Management Tool with respect to data related to commercial facilities monitoring, fleet maintenance monitoring.

Firm Contacts

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