

**The Virtual Observatory and Ecological Informatics System (VOEIS): using RESTful architecture and an extensible data model to provide a unique data management solution.**

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The Virtual Observatory and Ecological Informatics System (VOEIS) intends to provide scientists and data managers with an end-to-end management solution for a wide variety of environmental data types. The system currently provides a framework for data acquisition, quality assurance/control, visualization, and provenance tracking of temporally and spatially located data. Stand-alone Java applications allow users to automatically push real-time sensor network data to VOEIS, or to publish data housed in VOEIS to a HydroServer. VOEIS is built upon a unique and extensible data model, providing an avenue for future support of new data types with unique metadata requirements, while minimizing impacts of such additions to the existing software and user-interfaces. Initially, the data model supports: 1) field observations, 2) samples, 3) simulation results, and 4) derived values. The VOEIS architecture supports Representational State Transfer (REST) methods for each data model object. This allows users to fully integrate VOEIS into existing workflows for automated data retrieval and archiving, data publication, data visualization, or simulation modeling. Furthermore, REST methods provide straightforward access to the VOEIS architecture for those users that require custom user interfaces. VOEIS is an open-source Yogo Data Management Application built with Ruby on Rails® on a PostgreSQL backend.