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**CONTROL ID:** 1818013

**TITLE:** Leveraging Industry-Standard Metadata to Populate a Semantic Registry Suitable for the Model Web

**ABSTRACT BODY:** The Earth, Life, and Semantic Web (ELSEWeb) project aims at developing a semantically enabled service-oriented infrastructure that streamlines the flow of geographic, social, and climate data into and across sets of modeling services. The specific models targeted in ELSEWeb serve as part of the University of Kansas' Lifemapper system, which projects species' distributions under different models of climate change. Lifemapper models ingest stacks of geospatial data known as "scenario layer sets," which provide information about existing or hypothetical environments from which to predict where species may thrive. Prior to Lifemapper ingestion, users must discover and transform relevant data that will comprise layer sets, requiring analysis of metadata descriptions across a plethora of standards. The ELSEWeb infrastructure aims at alleviating manual discovery by introducing a semantic metadata registry from which semantic web tools can leverage, including the SADI orchestration framework (Wilkinson 2011), which coordinates transformations of input geospatial data into scenario layer sets and exposes the results for potential further analysis. Populating the semantic registry required translating a family of industry-standard metadata descriptions including: OGC getCapabilities, FGDC, and CF standard names into the semantic registry model.
This work reports on the construction and characteristics of our semantic registry, which currently describes over 6500 services providing a wide variety of environmental data. Additionally, we report on the SADI services that leverage the registry to (1) identify relevant environment data (2) aggregate data into layer sets, and (3) reshape data to fit Lifemapper requirements. Given this automation, users can explore a vast model space more easily—a principal central to the Model Web (Geller and Melton 2008).

**CURRENT SECTION/FOCUS GROUP:** Earth and Space Science Informatics (IN)

**CURRENT SESSION:** IN032. Semantically Enabling Annotation, Discovery, Access, and Integration of Scientific Data

**INDEX TERMS:** 1970 INFORMATICS Semantic web and semantic integration, 1968 INFORMATICS Scientific reasoning/inference, 1958 INFORMATICS Ontologies.

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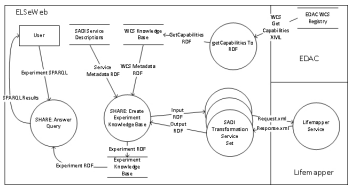
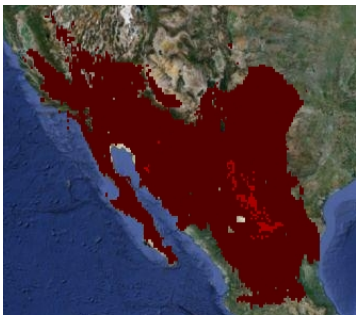
**TITLE OF TEAM:** The Earth, Life, and Semantic Web (ELSEWeb)



ELSEWeb Data Flow



Lifemapper Model Result

(No Table Selected)

**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster)

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