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Facilitating Next Generation Science Collaboration: Respecting and Mediating Vocabularies with Information Model Driven Semantics in Ecosystems Assessments.

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In Earth and space science, there is steady evolution away from isolated and single purpose data 'systems' toward systems of systems, data ecosystems, or data frameworks that provide access to highly heterogeneous data repositories. As a result, common informatics approaches are being sought for the development and implementation of newer architectures. One clear need is a repeatable method for modeling, implementing and evolving the information architectures.

A newly funded U.S. initiative is developing and deploying integrated ecosystem assessment (IEA) capability for marine ecosystems using an information science and semantic technologies. The intention is to advance the capacity of an IEA to provide the foundation for synthesis and quantitative analysis of natural and socio-economic ecosystem information to support ecosystem-based management. The initiative is creating capacity to assess the impacts of changing climate on two large marine ecosystems: the northeast U.S. and the California Current. These assessments will be essential parts of the science-based decision-support tools used to develop adaptive management measures. Enhanced collaboration is required to achieve these goals: interaction and information sharing within and among diverse data providers, analysis tool developers and user groups that constitute the broader coastal and marine ecosystem science application community.
This presentation outlines new component design approaches and sets of information model and semantic encodings for mediation.