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# Ontology Design Patterns: Bridging the Gap Between Local Semantic Use Cases and Large-Scale, Long-Term Data Integration

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Integrating datasets for new use cases is one of the common drivers for adopting semantic web technologies. Even though linked data principles enables this type of activity over time, the task of reconciling new ontological commitments for newer use cases can be daunting. This situation was faced by the Biological and Chemical Oceanography Data Management Office (BCO-DMO) as it sought to integrate its existing linked data with other data repositories to address newer scientific use cases as a partner in the GeoLink Project. To achieve a successful integration with other GeoLink partners, BCO-DMO's metadata would need to be described using the new ontologies developed by the GeoLink partners - a situation that could impact semantic inferencing, pre-existing software and external users of BCO-DMO's linked data. This presentation describes the process of how GeoLink is bridging the gap between local, pre-existing ontologies to achieve scientific metadata integration for all its partners through the use of ontology design patterns.

GeoLink, an NSF EarthCube Building Block, brings together experts from the geosciences, computer science, and library science in an effort to improve discovery and reuse of data and knowledge. Its participating repositories include content from field expeditions, laboratory analyses, journal publications, conference presentations, theses/reports, and funding awards that span scientific studies from marine geology to marine ecology and biogeochemistry to paleoclimatology. GeoLink's outcomes include a set of reusable ontology design patterns (ODPs) that describe core geoscience concepts, a network of Linked Data published by participating repositories using those ODPs, and tools to facilitate discovery of related content in multiple repositories.