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SEMANTICS & SERVICES SUPPORTING A WEB OF ANTARCTIC MARINE LIFE

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In 1998, Tim Berners-lee, credited with fathering the World Wide Web promulgated a vision for its successor, the “Semantic Web”. On this network, machines or their agents, not just humans can make sense and importantly, intelligent use of the vast range of on-line resources. The key to creating his vision lies in structuring resources so that they are able to be processed by machines and in creating standards-based, re-usable services to exploit these resources. With this in mind several Australian government agencies united forces to explore better ways to share and integrate their marine science data, using a service-oriented-architecture and mapping their data to common data schemas. In this implementation multi-disciplinary data is discovered and manipulated through a Portal which links, via a standards-based interface, to a publicly accessible services registry. The services which deliver the data originate from each of the contributing agencies and conform to the Open GIS Consortium (OGC) spatial data interface specifications. To ensure that data of similar type, but of different origin are displayed uniformly via the Portal, a common symbology set was established in a symbology catalogue. A taxonomic name service, geared to cover both regional and global taxa, was also developed to assist in discovering and integrating biotic observations. Whilst successful, particularly as an extensible framework in which to now grow the number and diversity of services, the project highlighted deficiencies with available open source and proprietary software tools. A lack of OGC standards for registry information models meant the group had to devise a model based on ebXML, borrowed from the business world, which we now hope will contribute to standards development. The infrastructure governance model, developed de novo, also serves as a template for others to use. As the distributed system accesses OBIS, the information repository for the Census of Antarctic Marine Life (CAML) and other regional marine services, Australia has the foundation for a web of Antarctic Marine Life. Future work will involve more detailed data modelling using ontologies and services development to allow for more complex data exploitation.