VoCamp: Glacier Vocabularies Hackathon

Semantic Web for Earth and Environment Terminology (SWEET) Ontology Resources

Agenda and Purpose

- Current status of SWEET
- Investigate and discuss the part(s) of SWEET [1] relevant to glacier's and related ice/water/terrain topics.
- The aim is to give an idea of the surrounding SWEET concepts including what relations are useful for using at the VoCamp.
- Identify, if any, possible alignments [2] between SWEET and other semantic or linked data resources.

What is SWEET?

- SWEET is a highly modular ontology suite with ~6000 concepts in ~200 separate ontologies covering Earth system science. SWEET is a mid-level ontology and consists of nine top-level concepts that can be used as a foundation for domain-specific ontologies that extend these top-level SWEET components.
- SWEET's own domain-specific ontologies, which extend the upper level ontologies, can provide users interested in further developing a particular domain with a solid set of concepts to get started.
- SWEET ontologies are written in W3C Turtle; the Terse RDF Triple Language and are publicly available under the Apache License v2.0.

Current status of SWEET

- As of mid 2017 version 3.x of the Semantic Web for Earth and Environmental Terminology (SWEET) Ontology suite was recently released under new community development, management and governance by ESIP's Semantic Technologies Committee (STC) [3].
- Advances in SWEET since its transition from NASA JPL over to the open source, community-driven management and governance structure now overseen by the ESIP STC include (i) URI transition and governance, transition from OWL to Turtle serialization, linked data dispatch via the ESIP Community Ontology Repository [4], and ongoing alignment activities with existing semantic technology resources such as the OBO Foundry collection, W3C SOSA/SSN, W3C PROV-O, etc.,

URI transition and governance

- The canonical details for this topic can be found at [5]
- **Essentially, it boils down to the URI transition from http://sweet.jpl.nasa.gov/… to http://sweetontology.net/...**
- The '#' character has also been substituted for '/' e.g. http://sweetontology.net/reprDataProduct#Dataset to http://sweetontology.net/reprDataProduct/Dataset
- There is now no file suffix e.g. *.owl, content negotiation is managed by the hosting platform (COR) in an adhoc manner, available serializations include OWL, Turtle, RDF/XML, N-Triples, etc. An example would be http://sweetontology.net/stateEnergyFlux?format=rdf

Transition from OWL to Turtle serialization

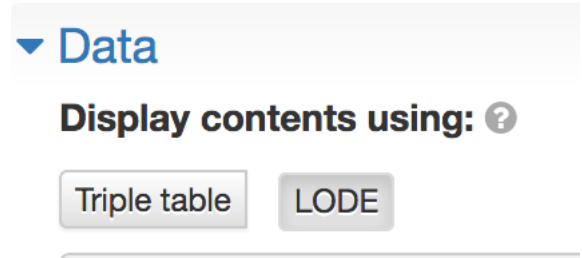
- SWEET ontologies are written in W3C Turtle [6]; the Terse RDF Triple Language
- We have tools available to ensure that the content of each file is ‘prettified’ e.g. alphabetically ordered, blank nodes use […] syntax for clearer syntax as supported by the OWL-API.
- More information can be found at [7]

Linked data dispatch via the ESIP Community Ontology Repository (COR)

- Canonical documentation can be located at [8]
- Full service GUI is available at http://cor.esipfed.org
- Core REST API documentation can be located at http://cor.esipfed.org/ontapi
- The COR software is being used on several other projects e.g. Marine Metadata Interoperability (MMI) project https://mmisw.org/.
- The COR software is maintained at the MMI Github https://github.com/mmisw and has an active team of developers.

Part(s) of SWEET relevant to glacier's and related ice/water/terrain topics

- 3 realms; realmCryo [9], realmHydroBody [11] and realmOcean [12]
- 2 phenomena; phenCryo [10] and phenAtmoWindMesoscale [13]
- The best way for people to get an idea of the RANGE and DOMAIN of SWEET Glacier concepts is simply to take 10 or so minutes exploring the above resources.
- All of the above resources can be vizualized online using the LODE COR functionality e.g. navigate to the relevant resource http://cor.esipfed.org/ont?iri=http://sweetontology.net/realmCryo then select the **LODE** display option.
- These can also be vizualized directly via the external service e.g http://www.essepuntato.it/lode/owlapi/http://cor.esipfed.org/ont/api/v0/ont%3Firi=http://sweetontology.net/realmCryo



References

1. https://github.com/esipfed/sweet
2. https://github.com/ESIPFed/sweet/tree/master/alignments
3. http://wiki.esipfed.org/index.php/Semantic_Technologies
4. https://cor.esipfed.org
5. https://github.com/ESIPFed/sweet/wiki/SWEET-IRI-Patterns-for-Ontologies-and-Their-Terms
6. http://www.w3.org/TR/turtle/
7. https://github.com/ESIPFed/sweet-tools
8. https://github.com/ESIPFed/sweet/wiki/sweetontology.net
9. http://sweetontology.net/realmCryo
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11. http://sweetontology.net/realmHydroBody
12. http://sweetontology.net/realmOcean
13. http://sweetontology.net/phenAtmoWindMesoscale