8th Annual Spatial Ontology Community (SOCoP) of Practice Workshop:

Developing Geo/Earth Science Related Ontology Patterns

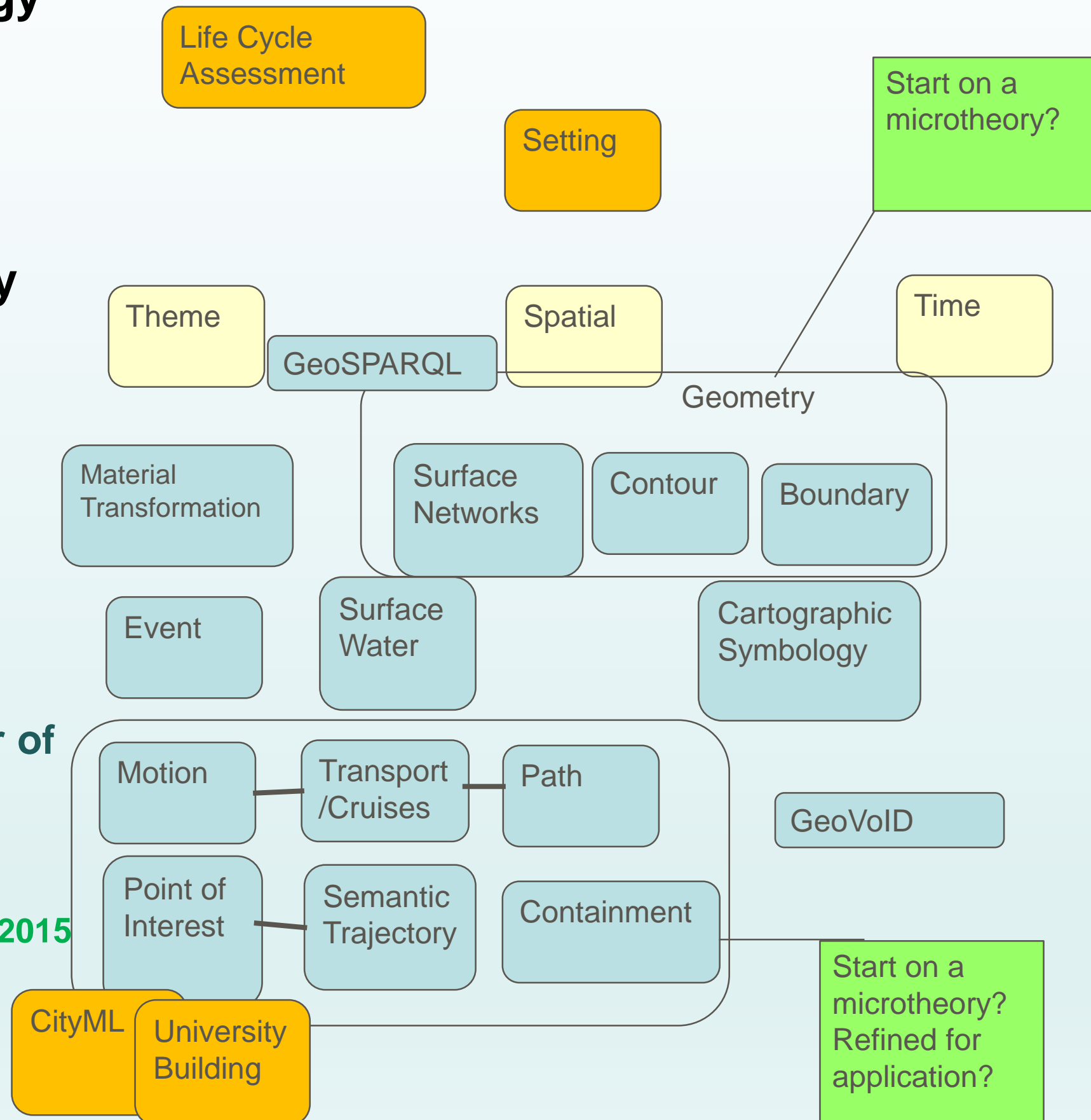**Nov. 30 -Dec. 2, 2015**

USGS National Facility Reston, VA

Thank you USGS and its Center of Excellence for Geospatial Information Science
Workshop info:
http://vocamp.org/wiki/GeoVoCampDC2015

Tweet: #geovocampdc15

Life Cycle Assessment

Setting

Start on a microtheory?

Theme

Spatial

GeoSPARQL

Time

Geometry

Material Transformation

Surface Networks

Contour

Boundary

Event

Surface Water

Cartographic Symbology

Motion

Transport /Cruises

Path

GeoVoID

Point of Interest

Semantic Trajectory

Containment

CityML

University Building

Start on a microtheory? Refined for application?

Logistics
Call in a touchtone, landline phone, US/Canada participants dial:
Verizon Toll Free:

username: vocamp1
Password: Usgs12345$

The conference call-in number (1-866-687-7995)
E. Lynn Usery has provided this info to join the VocCampDC meeting on the Web, using WebEx USGS

Main WebEx Sessions Day 1 afternoon, and Days 2-3 morning sessions as well as possible end of day summaries in the main meeting room.

8th Annual SOCoP Workshop
SOCoP collaboration was officially begun in October of 2006

- <u>Purpose</u>: to continue the discussion as follow-up previous VoCamps participated in by SOCoP+ members.

- The session is organized around 3-4 Work Groups made up of domain experts, group facilitators and people with semantic/ ontological experience.

- This will be a great opportunity for people interested in using semantics to see lightweight approaches applied in context.

Workgroups/Breakouts Include Multiple Roles:
"Group Work on Semantic Models of Interest"
Semantic Engineering is a Socio-Tech Process

Logic of Work Sessions

At end of day
Group Reports on status

After break Group Work
on **Draft Models**

2nd Day Group Work on
Concepts, Vocabulary & Model(s)

Start Group organization &
Introductions, goals and process

Start Here Day One Intro,
Topics, Methods..

At end of day **Report back**
to whole and wrap up

After lunch Prepare Report

firm up products
and test against data

Draft final model
& initial formalizations
After break Work Groups
polish, formalize models

3rd day
Remote advice

Agenda Monday Afternoon, Nov. 30th, 2015

12:30-1:00 Welcome, Introductions, Logistics and Schedule Overview Room 1B215
　　　　Note – This session includes WebEx as a virtual meeting

1:00- 1:25   Workshop Descartes Core Vision, Strategy & Methods- Gary Berg-Cross

1:25 – 1:45   Overview of the new VoCamp GitHub repository for Products, Briefings etc. Charles Vardeman.

1:45 - 2:45 Working Topics (Presented by Topic Leaders)
*   Physical Samples   (Richard)
*   3 D spatial Patterns (Vardeman)
*   Topographic Eminences and Terrain Convexities (Sinha)

2:45- 3:00   Break

3:00-4:45   Group organization and introductions - setting goals and process
　　　　in 3 "Breakout Rooms"
　　　　Remote participation & presentations as decided by Topic Leaders

4:45-5:30   Group Reports to the Whole – Main room as a virtual meeting

Post 5:30 PM – Groups may make arrangements for dinner on their own. Our tradition has been to go to Clyde's in Reston at least one of the nights.

Tuesday Dec. 1

9:00~9:15   Updates, Q & A etc. (schedule etc.) Main room

9:15-10:45   Group Work on Concepts, Vocabulary and Model (Breakout Rooms)
11:00-12:15   Group Work on Draft Models (Breakout Rooms)

12:15 -1:15   Lunch and Networking – USGS cafeteria

1:15- 2:45   Work Groups – draft final conceptual model (Breakout Rooms)

2:45- 3:15   Work Groups identify data to test model & initial formalizations Prepare

3:15-3:30   Break

3:30-4:30   Prepare Brief Back Report (Breakout Rooms)

4:30-5:00   Interim Group reports Main Room (Broadcast as Virtual Meeting)
5:00 -5:30   Tentative Krzysztof Janowicz Descartes Core & ODP briefing and (Broadcast   as Virtual Meeting)

Anyone want to organize a group dinner???.

Wed. Dec. 2

9:00-9:15 Updates, Q & A etc. (schedule, GiTHub effort etc.) Main Meeting Room

9:15- 9:45   Presentation by **Pascal Hitzler,** on some formalization thoughts based
                         on group work

9:45-10:45   Work Groups Firming up products and alignments (Breakout Rooms)

10:45-11:00   Break (USGS cafeteria etc.)

11:00-12:00   Prepare group reports and plans for follow up(Breakout Rooms)

12:00 -1:00   Lunch and Networking - On your Own

1:00 ~ 2:30   Group reports & Wrap up (Main Room)

History of our VoCamps

1. NeoGeoVoCampOctober2009
2. GeoVoCampDC2011
3. GeoVoCamp Santa Barbara 2012
4. GeoVoCamp Dayton 2012
5. GeoVoCamp SOCoP DC 2012
6. 1st Vocamp - Energy Efficiency in Buildings.
7. Descartes-Core GeoVoCamp Santa Barbara 2013
8. SOCoP's GeoVoCampDC2013 held at NSF Nov. 18-19, 2013
9. Descartes-Core GeoVoCamp Santa Barbara 2014
10. GeoVoCamp at USGS in DC - GeoVoCampSOCoP2014
11. GeoVoCamp Santa Barbara 2015 (March 23-25, 2015)
12. VoCamp Notre Dame 2015 (May 18-19, 2015)

Some VoCamp Products

A geo-ontology design pattern for semantic trajectories
Hu, Y., Janowicz, K., Carral, D., Scheider, S., Kuhn, W., Berg-Cross, G., Hitzler, P., Dean, M., Kolas, D.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) volume 8116, issue , year 2013, pp. 438 – 456

Hitzler, Pascal, Krzysztof Janowicz, and Adila A. Krisnadhi. "Ontology modeling with domain experts: The GeoVoCamp experience." *Proceedings of the Diversity++ Workshop Co-Located with the 14th ISWC 2015*. 2015.

Followed up with more work as GeoLink
Krisnadhi, A. A., et al. "The GeoLink framework for pattern-based linked data integration." *ISWC2015 Poster Proceedings* (2015).

Krisnadhi, Adila, Yingjie Hu, Krzysztof Janowicz, Pascal Hitzler, Robert Arko, Suzanne Carbotte, Cynthia Chandler et al. "The GeoLink Modular Oceanography Ontology."

Krisnadhi, A.A., Hu, Y., Janowicz, K., Hitzler, P., Arko, R., Carbotte, S., Chandler, C., Cheatham, M., Fils, D., Finin, T., Ji, P., Jones, M., Karima, N., Mickle, A., Narock, T., O'Brien, M., Raymond, L., Shepherd, A., Schildhauer, M., Wiebe, P.: The GeoLink framework for pattern-based linked data integration. In: ISWC2015 Poster Proceedings (2015),

Janowicz, K., Krisnadhi, A.A., Hu, Y., Suh, S., Weidema, B.P., Rivela, B., Tivander, J., Meyer, D.E., Berg-Cross, G., Hitzler, P., Ingwersen, W., Kuczenski, B., Vardeman, C., Ju, Y., Cheatham, M.: A minimal ontology pattern for life cycle assessment data. In: Proceedings of the Workshop on Ontology and Semantic Web Patterns (6th edition), WOP2015, Bethlehem, PA, October 2015 (2015),

Vardeman II, Charles F., Adila A. Krisnadhi, Michelle Cheatham, Krzysztof Janowicz, Holly Ferguson, Pascal Hitzler, and Aimee PC Buccellato. "An Ontology Design Pattern and Its Use Case for Modeling Material Transformation."

Hitzler, Pascal. "Ontology Design Patterns as the next step in Web Semantics."

Gary Berg-Cross, "The GeoVoCamp Workshop Experience and Ontology Design Pattern Development." in Narock, T., and P. Fox. *The Semantic Web in Earth and Space Science. Current Status and Future Directions* 20 (2015): 171.

Overview of Lightweight Methods: Low hanging fruit **leverages initial vocabularies** (e.g. Feature, Site) and existing **conceptual models** to ensure that a semantics-driven infrastructure is available for use in **early stages of work** and used to clarified agreement & reduce ambiguities/conflicts on geospatial & related phenomena

Ontology Engineering

Problems, Component and Relation Identification & Clarification

Lightweight Methods: develop general, reusable patterns that provide a common, modular framework to generate ontologies that are consistent and can support interoperability.

Conceptualization Phase
- Agreements can then be formally represented in:
  - Constrained, engineered models
  - Systematic organization & framing with visual expression
  - "Patterns are viewed as strategies which ease the creation of application ontologies by non-experts".

We like data-grounded work with interoperability in mind

Formalization