Geospatial Open Ontology Repository (OOR) Initiative for NSF SOCoP INTEROP Project
(*Spatial Ontology Community of Practice)*
http://socop.oor.net/

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2012 Ontology Summit

SOCoP INTEROP
CYBERINFRASTRUCTURE

Spatial Ontology Community of Practice (SOCoP, www.socop.org)

- **SOCoP** – national level group of practitioners, academic researchers, federal agency workers, industry representatives
  - Started in 2006
  - Recognize the need for **semantic** interoperability for geospatial data
  - Realize the potential of **knowledge bases** and formal representations to help solve semantic heterogeneity in geospatial data
  - Monthly telecons – see www.socop.org and http://ontolog.cim3.net/forum/socop-forum/
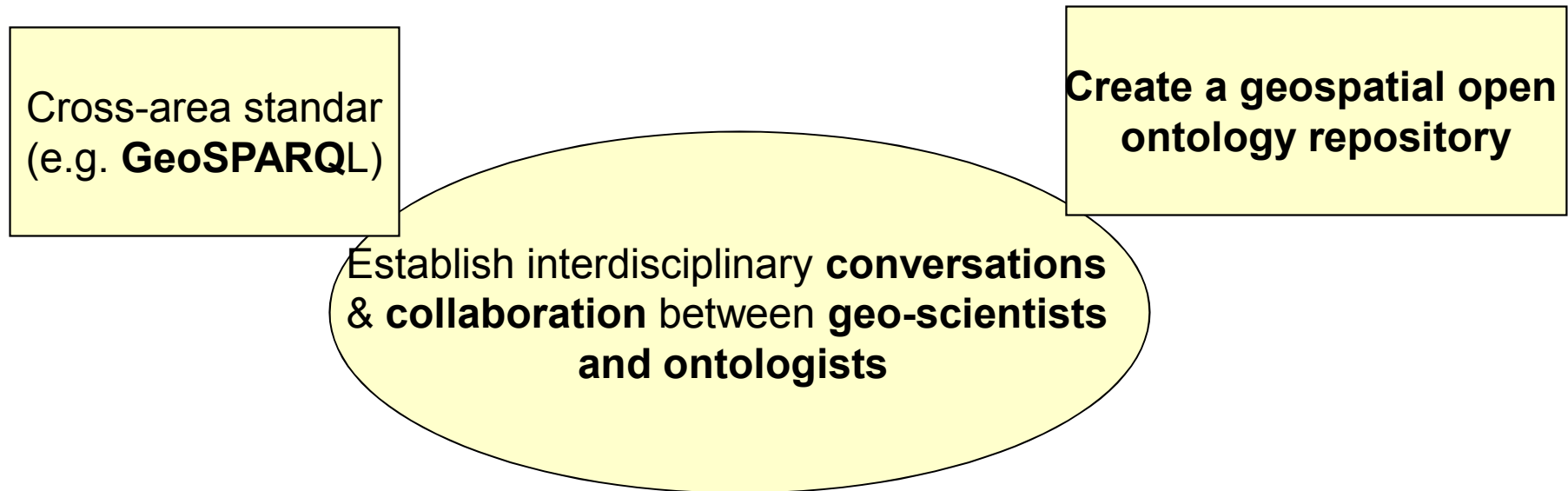
NSF SOCoP INTEROP Grant (2011-13)

- Submitted by 8 members of SOCoP :
  - Nancy Wiegand - University of Wisconsin-Madison (PI)
  - Gary Berg-Cross - Knowledge Strategies (consulting)
  - James Wilson - James Madison University
  - Mike Dean and Dave Kolas – Raytheon BBN Technologies
  - Naijun Zhou - University of Maryland College Park
  - Peter Yim - CIM Engineering, Inc.
  - John Moeller - JJMoeller and Associates
- Purpose of the SOCoP INTEROP Grant:
  - Apply and develop semantic technologies for the Geospatial domain
  - Share ontologies to promote data interoperability
    - An **ontology repository was a key component** to support this.
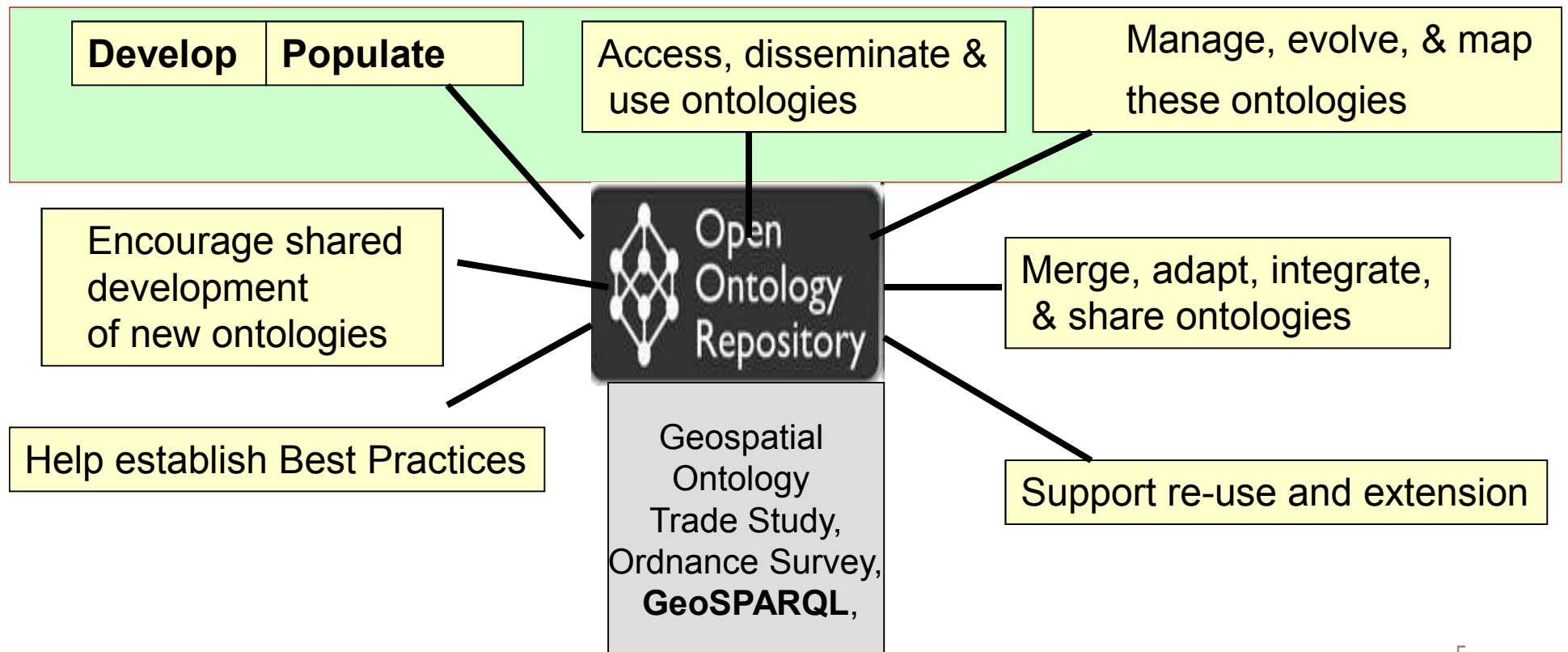
**SOCoP INTEROP
CYBERINFRASTRUCTURE**

INTEROP Goals & Tasks - Overview

Cross-area standar (e.g. **GeoSPARQ**L)

Create a geospatial open ontology repository

Establish interdisciplinary **conversations & collaboration** between **geo-scientists and ontologists**

- Supported by
  - Web presence - Wiki
  - Workshops & demos
  - Educational component

SOCoP OOR Lifecycle Vision & Role

Small scale analogy to the BioPortal effort as a
community resource

Develop	**Populate**

Access, disseminate &
use ontologies

Manage, evolve, & map
these ontologies

Encourage shared
development
of new ontologies

Open
Ontology
Repository

Merge, adapt, integrate,
& share ontologies

Help establish Best Practices

Geospatial
Ontology
Trade Study,
Ordnance Survey,
GeoSPARQL,

Support re-use and extension

Background of OOR

- OOR Background
- Central topic for 3rd Ontology Summit 2008
  - Requirements, issues, and ideas documented in the Ontology Summit 2008 Communique
  - OOR Charter
  - Full details at http://openontologyrepository.org
  - Implementation based on BioPortal

Current OOR Focus Areas

- Architecture and API

- Metadata

- Common Logic Support

- Gatekeeping Mechanisms

Dolce Ultra Lite?

Patterns

"Geo" Top

"Geo"-Domain

Apps
(Uses Cases &
Demos)
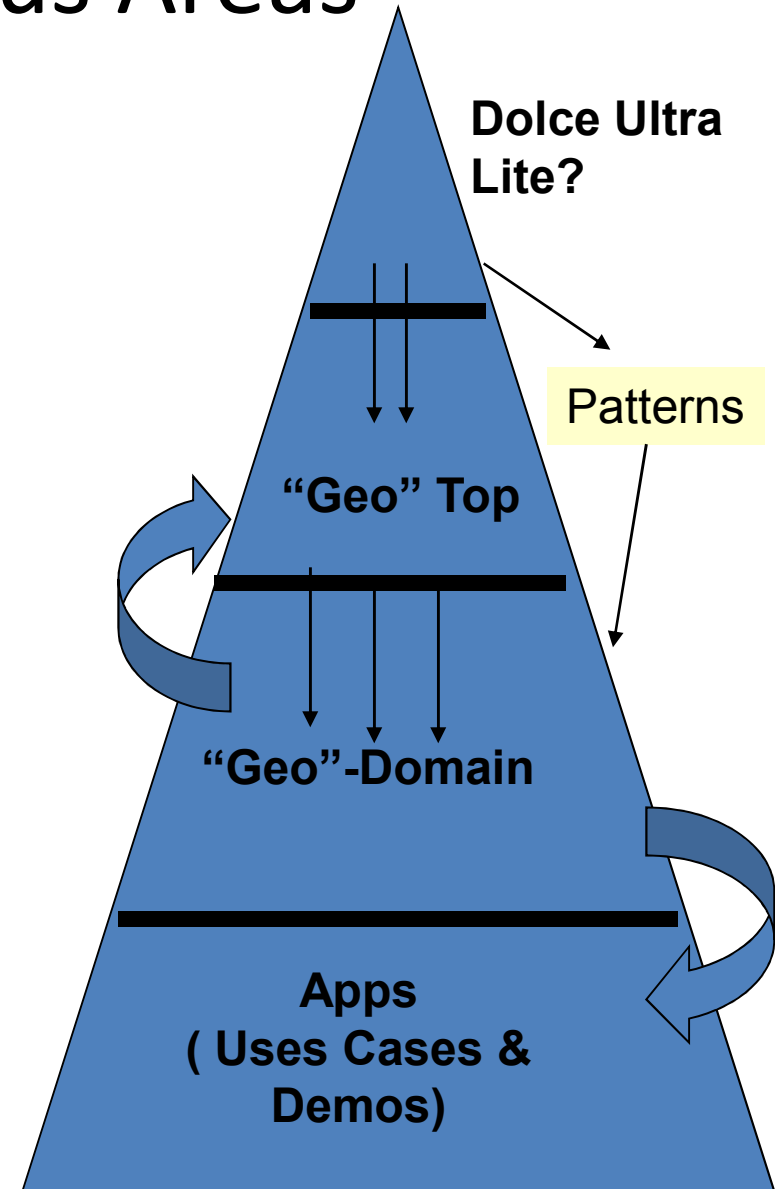
Ontology Repository - global OOR index /Instances

- **At http://oor.net one can Click on the OOR instances below,**
- **OOR-sandbox -** http://sandbox.oor.net - OOR sandbox instance for shared open ontologies
- **OOR-dev -** http://dev.oor.net - development instance for the OOR development team
- **OOR-test -** http://test-00.oor.net - test instance for the OOR team
- **SOCoP-OOR -** http://socop.oor.net - OOR instance by Spatial Ontology Community of Practice (SOCoP)
- **COLORE -** http://colore.oor.net - developing instance of the COmon LOgic REpository (at University of Toronto)
- **Ontohub -** http://ontohub.oor.net - the developing Ontohub instance for distributed ontologies (at University of Bremen)
- **ORNL-DAAC -** http://ornl-daac.oor.net - the Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC) for biogeochemical dynamics
- **MMI-ORR -** http://mmisw.oor.net - the Ontology Registry & Repository for the Marine Metadata Interoperability (MMI) Project
- **BioPortal -** http://bioportal.bioontology.org/ - the open repository for Biomedical Ontologies by the National Center for Biomedical Ontology (NCBO)

- *Go to Homepage of the OOR Initiative - http://www.oor.net*

Demo Topics

- Front Page
- Current Content
- Adding an Ontology
- Browsing & Visualizing
- Searching and Mapping

Demo

OOR Federation

"**Heterogeneous**" federation between OOR & other ontology repositories and development tools,

Uni- or bi-directional linkage

Initial work on **"homogeneous"** federation between OOR instances

SPARQL endpoints
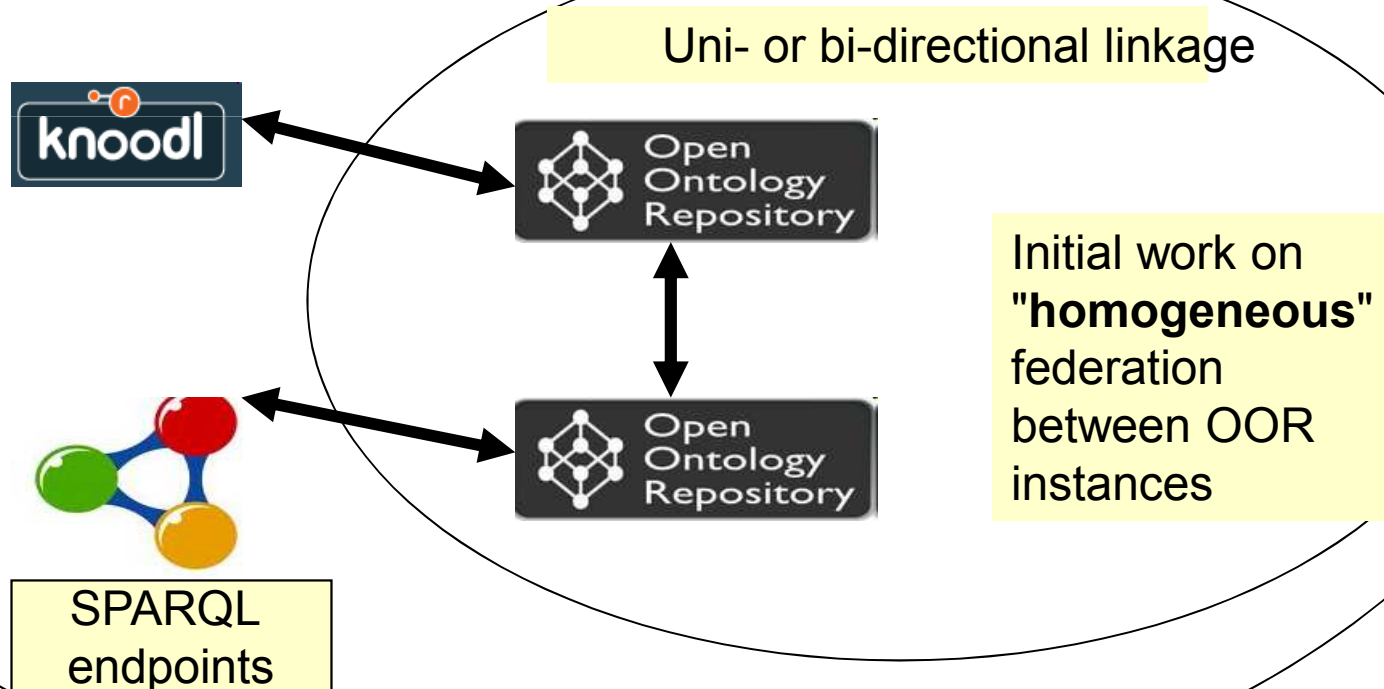
Conclusion

- **Lots of important work to do.**
  - Need to flesh out "Geo" top
- What are the requirements for populating a good family of ontologies?
  - We want a domain modular, extensible ontology and....
- Lower parts are increasingly the work of the wider Geo-Spatial community
  - There will be inconsistencies between them

Can we combine top-down and bottom approaches to reach a good O-suite in the OOR?

Dolce Ultra Lite?

Patterns

"Geo" Top

"Geo"-Domain

From Uses Cases & Demos?
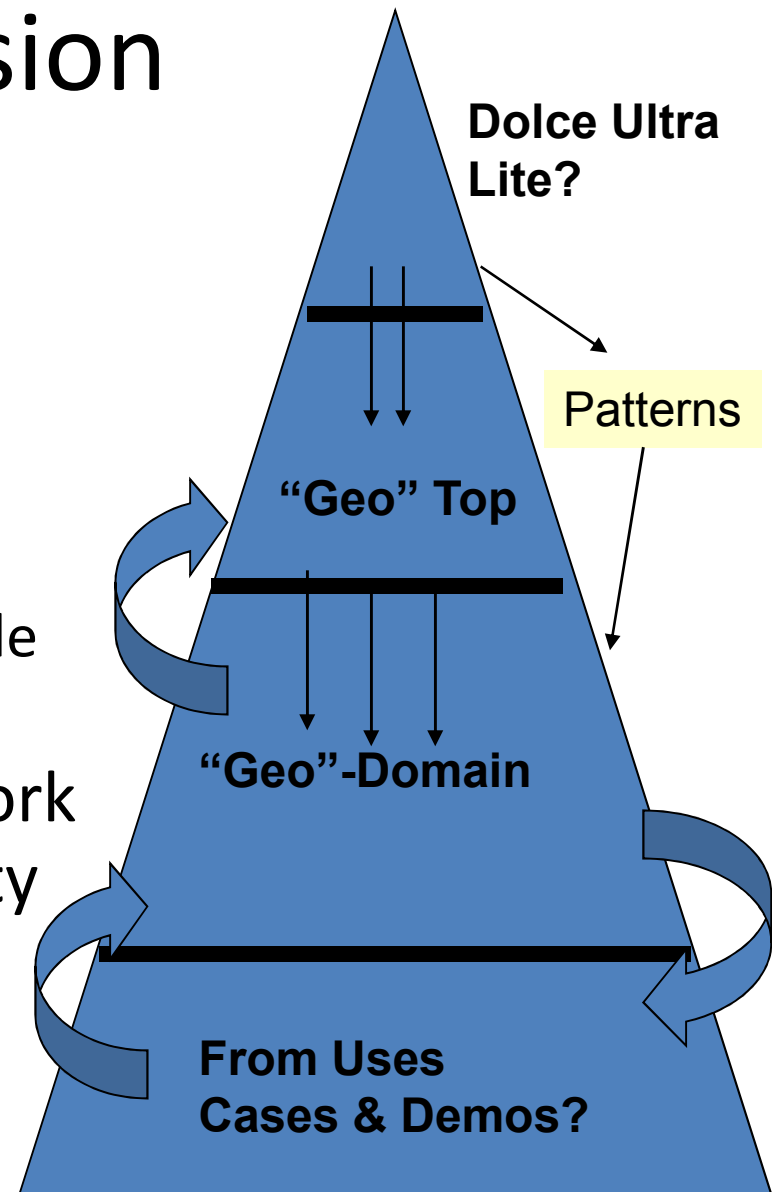
Call for Contributions

Soliciting ontology contributions and ideas from the community!

More Information

- See OpenOntologyRepository.org or www.oor.net
  - OOR Telecons most Tuesdays
- SOCoP INTEROP OOR at: http://socop.oor.net/
- General SOCoP information at: www.socop.org

Screenshot Backups

Browsing and Searching Ontologies demo

Browse

Access all ontologies that are available in SOCoP OOR: You can filter this list by category to display ontologies relevant for a certain domain. You can also filter ontologies that belong to a certain group. Add a new ontology to SOCoP OOR using the Submit New Ontology link.

FILTER BY CATEGORY	All Categories ▾
FILTER BY GROUP ⑦	All Groups ▾
FILTER BY TEXT	

Submit New Ontology

🔊 Subscribe to all updates

ONTOLOGY NAME ▲	VISIBILITY	TERMS	NOTES	REVIEWS	PROJECTS	UPLOADED	AUTHOR
Abstract Geometry (AG)	Public	3	0	0	0	01/25/2012	Ordnance Survey
Basic Formal Ontology (BFO)	Public	39	0	0	0	02/06/2012	Holger Stenzhorn
DOLCE+DnS Ultralite (DUL)	Public	75	0	0	0	12/02/2011	Aldo Gangemi
Friend of a Friend (FOAF)	Public	3	0	0	0	09/19/2011	Dan Brickley
Geoconcepts ontology Lite (GeOC)	Public	19	0	0	0	02/22/2012	Gary Berg-Cross for Javier Ruiz
GeoNames (GeoNames)	Public	10	0	0	0	01/15/2012	Bernard Vatant
GeoSPARQL (GeoSPARQL)	Public	0	0	0	0	09/28/2011	Matthew Perry
ISO 19103 Geographic Information Conceptual Schema Language (ISO19103)	Public	43	0	0	0	12/02/2011	Bora Beran, Akm Saiful Islam, Luis Bermudez, Stephane Fellah, Michael Piasecki
ISO 19107:2003 Geographic Information - Spatial Schema (ISO19107)	Public	102	0	0	0	12/02/2011	Bora Beran, Akm Saiful Islam, Volkan Yargici, Stephane Fellah, Michael Piasecki
ISO 19108:2002 Geographic Information - Temporal Schema (ISO19108)	Public	43	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Luis Bermudez, Stephane Fellah, Michael Piasecki
ISO 19111:2003 Geographic Information - Spatial Referencing by Coordinates (ISO19111)	Public	22	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Piasecki
ISO 19112:2003 Geographic Information - Spatial Referencing by Geographic Identifier (ISO19112)	Public	7	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Piasecki
ISO 19115:2003 Geographic Information - Metadata (ISO19115)	Public	120	0	0	0	01/15/2012	Akm Saiful Islam, Luis Bermudez, Bora Beran, Stephane Fellah, Michael Piasecki

ISO 19115:2003 Geographic Information - Metadata Application

Example of Content:
Extant Geo-Spatial Osntologies

Ontology Visualization -demo

Placeholder-Ontology Mapping