

Geospatial Open Ontology
Repository (OOR) Initiative for NSF
SOCoP INTEROP Project
(*Spatial Ontology Community of
Practice*)

<http://socop.oor.net/>

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**SOCoP INTEROP
CYBERINFRASTRUCTURE**



2012 Ontology Summit

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)

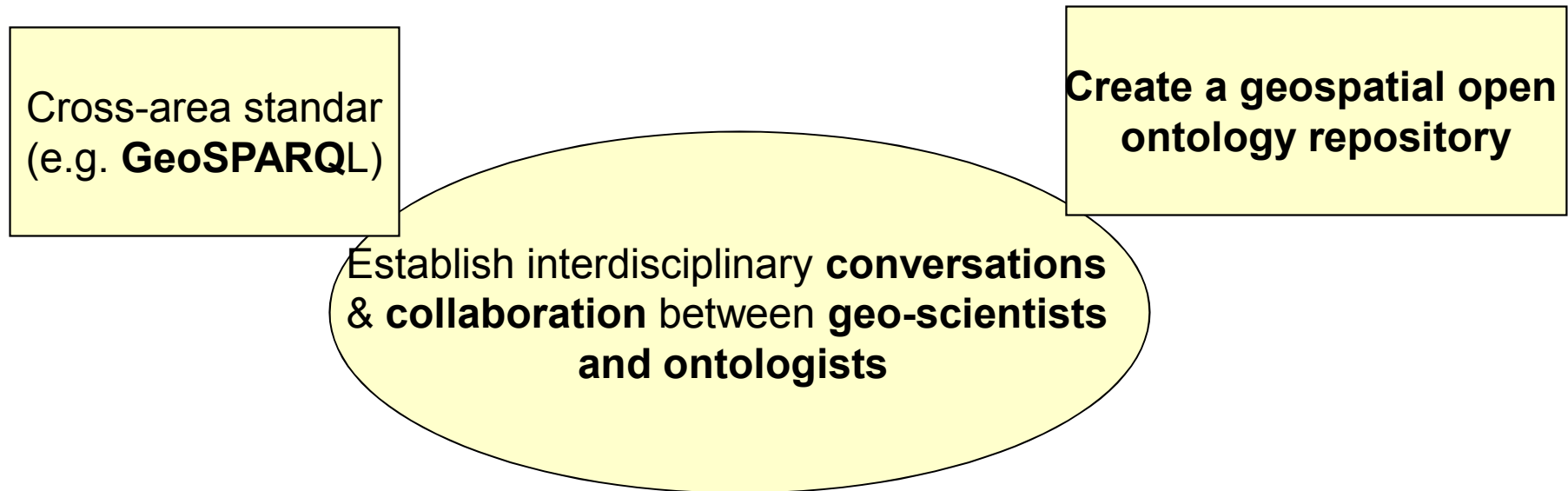
- Submitted by 8 members of SOCoP :
 - Nancy Wiegand - University of Wisconsin-Madison (PI)
 - Gary Berg-Cross - Knowledge Strategies (consulting)
 - James Wilson - James Madison University
 - Mike Dean and Dave Kolas – Raytheon BBN Technologies
 - Naijun Zhou - University of Maryland College Park
 - 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
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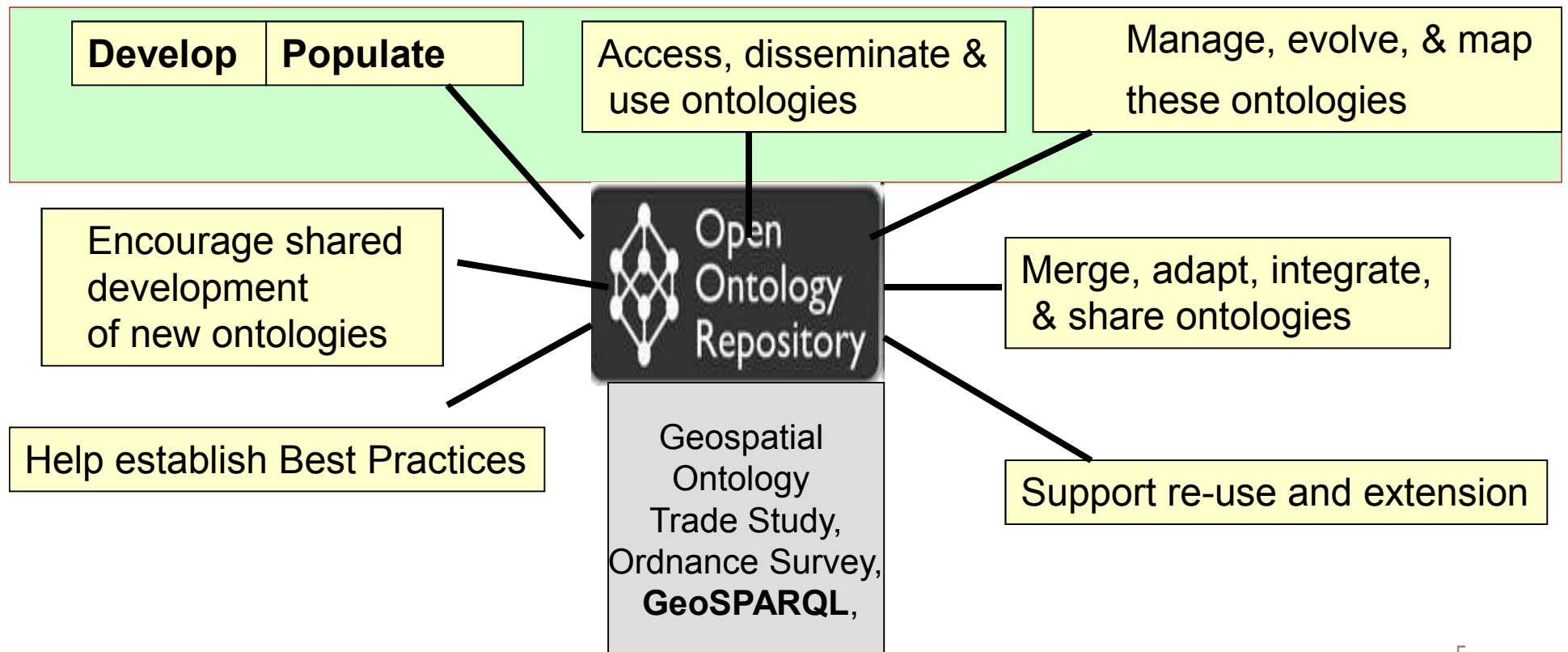
INTEROP Goals & Tasks - Overview



- 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



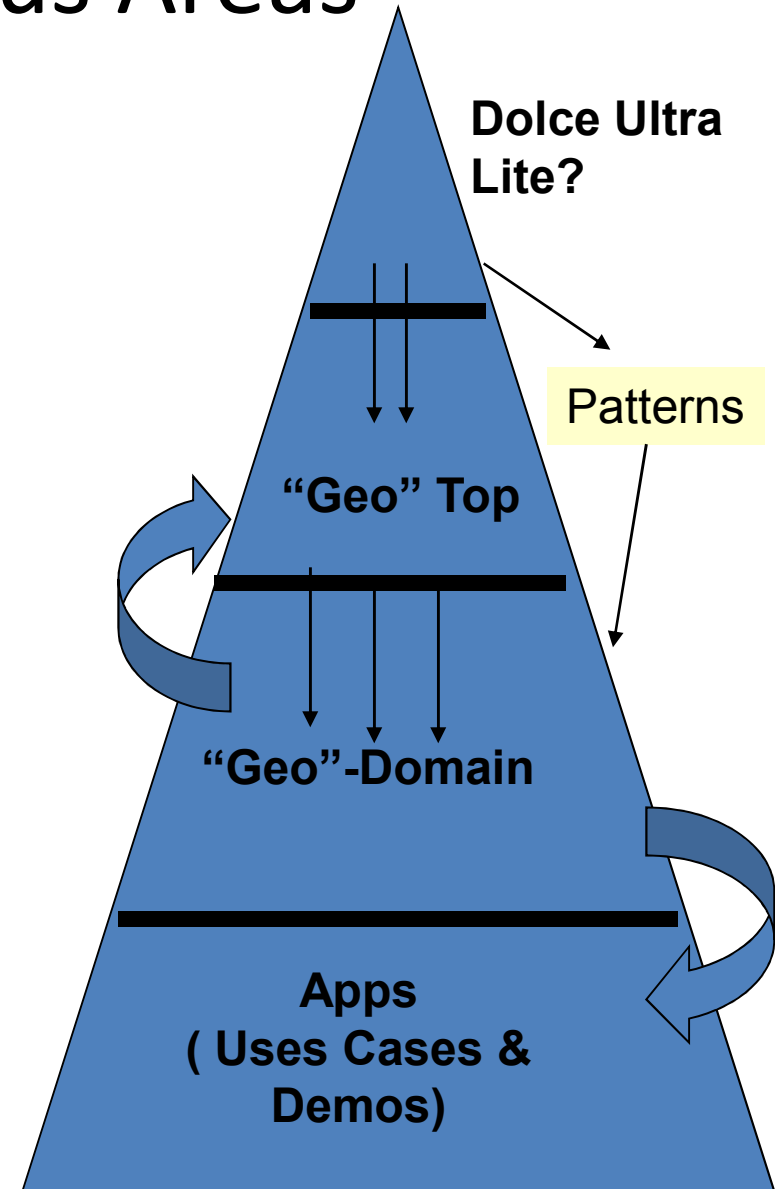
Background of OOR



- 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



Ontology Repository - global OOR index /Instances

- At <http://oor.net> one can Click on the OOR instances below,
- **OOD-sandbox** - <http://sandbox.oor.net> - OOR sandbox instance for shared open ontologies
- **OOD-dev** - <http://dev.oor.net> - development instance for the OOR development team
- **OOD-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

Use the [Spatial Ontology Community of Practice \(SOCoP\) Open Ontology Repository \(OOR\)](#) to access and share geospatial and related ontologies. You can [create ontology-based annotations for your own text](#), [link your own project that uses ontologies to the description of those ontologies](#), [find and create relations between terms in different ontologies](#), [review and comment on ontologies and their components as you browse them](#). [Sign in to the OOR](#) to submit a new ontology or ontology-based project, provide comments on ontologies or add ontology mappings.

Search all ontologies

[Advanced Search](#)

Find an ontology

[Browse Ontologies >](#)

Search resources

[Advanced Resource Search](#)

Most Viewed Ontologies (Month, YYYY)

Ontology	Views

Latest Notes

Latest Mappings

[qml:Feature \(Geoconcepts ontology Lite\) => gn:Feature \(GeoNames\)](#)
BioPortal UI 04/10/12 garybc

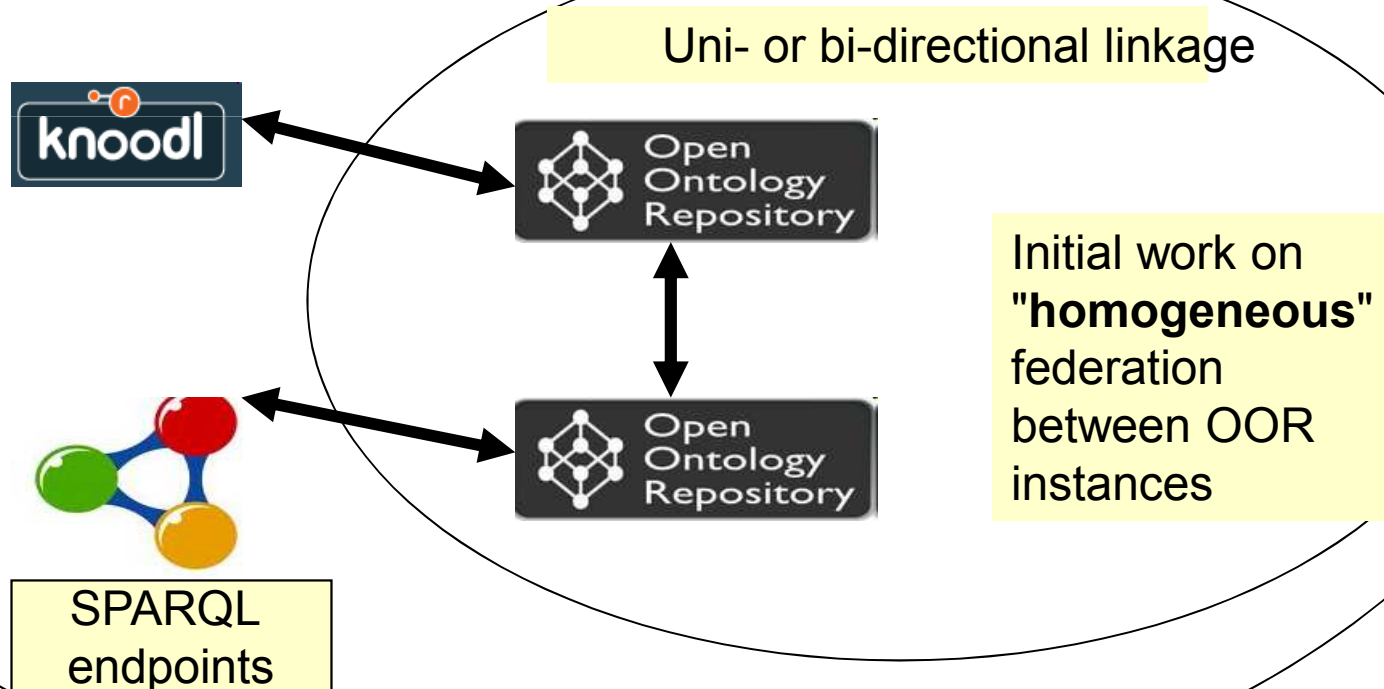
[gn:Feature \(GeoNames\) => qml:Feature \(Geoconcepts ontology Lite\)](#)
BioPortal UI 04/10/12 garybc

Statistics

Ontologies	26
Terms	911
Resources Indexed	24
Indexed Records	0
Direct Annotations	1,011,241,184
Direct Plus Expanded Annotations	10,416,891,634

OOR Federation

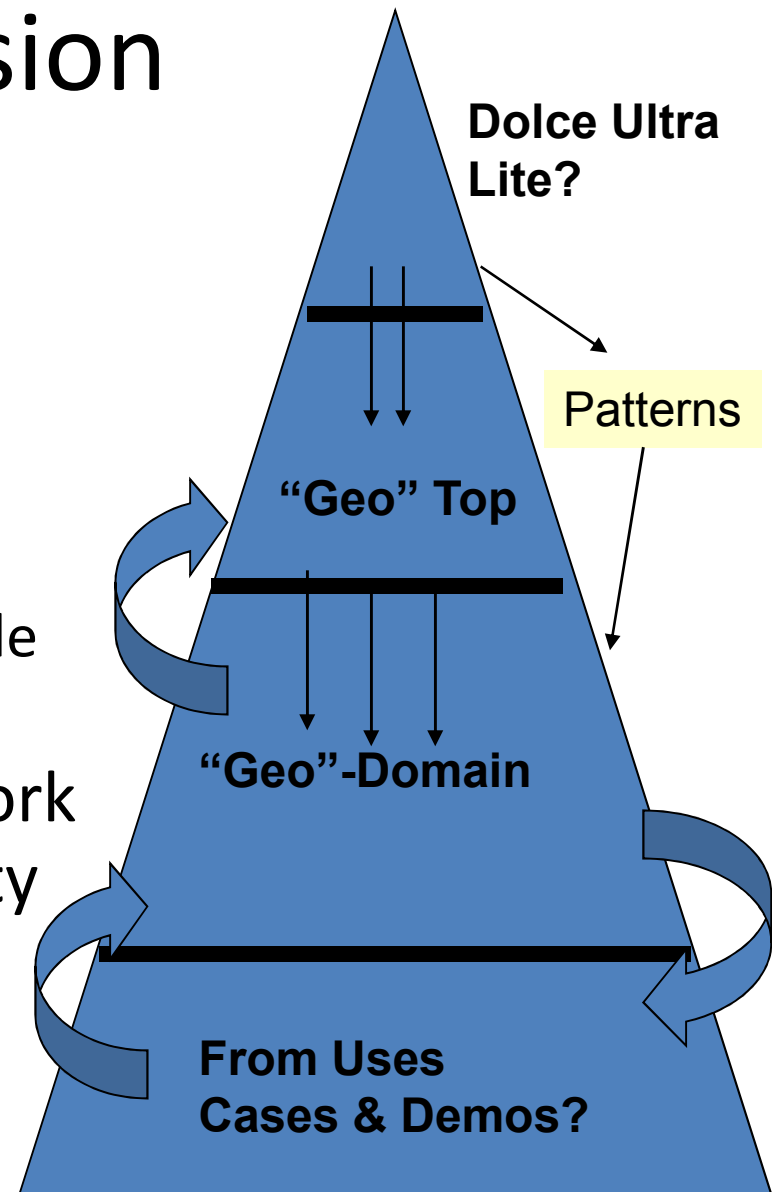
“**Heterogeneous**” federation between OOR & other ontology repositories and development tools,



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?



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 ?	All Groups ▼ ↗
FILTER BY TEXT	<input type="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 Fella, 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 Fella, 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 Fella, 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 Fella, Michael Piasecki
ISO 19115-2:2003 Geographic Information - Metadata Application							

Example of Content: Extant Geo-Spatial Ontologies

Open Ontology Repository

Browse Search Mappings Recommender Projects

Recently Viewed | Index | Help | Feedback

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. [Subscribe to the SOCoP OOR RSS feed](#) to receive alerts for submissions of new ontologies, new versions of ontologies, new notes, and new projects. You can subscribe to feeds for a specific ontology at the individual ontology page. Add a new ontology to SOCoP OOR using the [Submit New Ontology](#) link.

FILTER BY CATEGORY:

FILTER BY GROUP:

FILTER BY TEXT:

[Submit New Ontology](#)

 [Subscribe to all updates](#)

ONTOLOGY NAME	▲ VISIBILITY	TERMS	NOTES	REVIEWS	PROJECTS	UPLOADED	AUTHORS
Basic Formal Ontology (BFO)	Public	36	0	0	0	12/02/2011	Holger Stenohm
DOLCE-Drs Ultralite (DUL)	Public	25	0	0	0	12/02/2011	Aldo Gangemi
Friend of a Friend (FOAF)	Public	3	0	0	0	09/19/2011	Dan Brickley
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 19102 Geographic Information Conceptual Schema Language (ISO19102)	Public	43	0	0	0	12/02/2011	Bora Beran, Akm Saiful Islam, Luis Bermudez, Stephane Fellah, Michael Pasecki
ISO 19107-2001 Geographic Information - Spatial Schema (ISO19107)	Public	102	0	0	0	12/02/2011	Bora Beran, Akm Saiful Islam, Volkan Yargici, Stephane Fellah, Michael Pasecki
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 Pasecki
ISO 19111-2003 Geographic Information - Spatial Referencing by Coordinates (ISO19111)	Public	22	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Pasecki
ISO 19112-2003 Geographic Information - Spatial Referencing by Geographic Identifier (ISO19112)	Public	2	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Pasecki
ISO 19115-2003 Geographic Information - Metadata (ISO19115)	Public	50	0	0	0	01/15/2012	Akm Saiful Islam, Luis Bermudez, Bora Beran, Stephane Fellah, Michael Pasecki
ISO 19115-2003 Geographic Information - Metadata Application (ISO19115-APP)	Public	9	0	0	0	01/15/2012	Akm Saiful Islam, Michael Pasecki
ISO 19115-2003 Geographic Information - Rules for Application Schema (ISO19115)	Public	10	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Pasecki
ISO 19115-2003 Geographic Information - Methodology for Feature Cataloguing (ISO19115)	Public	11	0	0	0	01/15/2012	Akm Saiful Islam, Bora Beran, Michael Pasecki
Land Use and Cover Change (LUCC)	Public	216	0	0	0	09/19/2011	Gary Berg-Cross, Dawn Parker, Gary Poitill
NeoGeo Geometry Ontology (NeoGeo-Geometry)	Public	10	0	0	0	01/15/2012	Juan Martin Salas, Andreas Harth, Barry Norton, Luis M. Vilches, Alexander De Leon, John Goodwin, Claus Stadler, Suchith Anand, Dominic Harries
							Juan Martin Salas, Andreas Harth, Barry

Ontology Visualization -demo

The screenshot displays the Open Ontology Repository (OOR) interface for the 'Land Use and Cover Change' ontology. The browser address bar shows the URL: <http://socop.oor.net/ontologies/10002/p=terms>. The page features a navigation menu with options like 'Browse', 'Search', 'Projects', 'Annotate', 'All Mappings', and 'All Resources'. The main content area is titled 'Land Use and Cover Change' and includes a 'Jump To:' search box and a list of ontology classes on the left. The right pane shows the 'Details' tab for the class 'AcquirersOfLand', listing its preferred name, ID, full URI, and a list of classes it is disjoint with.

Land Use and Cover Change

Jump To:

- AcquirersOfLand
- Agent
- AgentDecisionModel
- AgentExternalResources
- AgentInternalCharacteristics
- AgentParcelRelationships
- AllocationMechanism
- BiophysicalProcessModels
- CulturalIdentity
- CulturalPreference
- DecisionmakingUnits
- DecisionStrategy
- DemandTermsOffered
- DemographicDynamics
- Demographics
- EconomicStructures
- Environment
- EventSequencing
- GISLayers
- HumanCapital
- InstitutionalAndPoliticalSetting
- InteractionEnvironments
- InterfacesToOtherModels
- LandExchange
- LandExchangeRules
- Landscape
- LandUseDecision
- LandUseDecisionData
- LandUseProductivity
- LifeCycleDynamics
- LocalMarket
- LUCC
- ModelInitialization
- ModelOperation
- MotivationForLandAcquisition
- MotivationForLandSupply

Details Visualization Notes (0) Mappings (0) Resource Index

Preferred Name: AcquirersOfLand

ID: AcquirersOfLand

Full Id: <http://www.owl-ontologies.com/Ontology1176505316.owl#AcquirersOfLand>

Disjoint With:

- [LandExchange](#)
- [Payoff](#)
- [DecisionmakingUnits](#)
- [LandUseDecisionData](#)
- [LandExchangeRules](#)
- [TemporalDynamics](#)
- [SupplyTermsOffered](#)
- [InstitutionalAndPoliticalSetting](#)
- [SuppliersOfLand](#)
- [ModelOperation](#)
- [InterfacesToOtherModels](#)
- [LifeCycleDynamics](#)
- [Realism](#)
- [Agent](#)
- [CulturalPreference](#)
- [DemandTermsOffered](#)
- [ModelInitialization](#)
- [VariationInBiophysicalCapability](#)
- [OtherSpatialDataInputs](#)
- [Landscape](#)
- [AgentParcelRelationships](#)
- [GISLayers](#)
- [ParcelsSupplier](#)
- [ParcelStructure](#)
- [NonSpatialNetworks](#)
- [Demographics](#)
- [Environment](#)
- [CulturalIdentity](#)
- [SocioeconomicModels](#)
- [AgentExternalResources](#)
- [SpatialDataTypes](#)
- [EventSequencing](#)
- [SocialCapital](#)
- [HumanCapital](#)
- [LandUseDecision](#)
- [BiophysicalProcessModels](#)
- [DecisionStrategy](#)
- [AllocationMechanism](#)
- [LUCC](#)
- [AgentInternalCharacteristics](#)
- [PotentialLandUse](#)
- [MotivationForLandSupply](#)

Placeholder-Ontology Mapping

The screenshot shows the Open Ontology Repository interface. The top navigation bar includes 'Open Ontology Repository', 'Browse', 'Search', 'Mappings', 'Recommender', and 'Projects'. A user profile 'Recently Viewed | garybc' is visible. The main header displays 'GeoNames' and a 'Terms' dropdown menu. Below this is a 'Jump To:' search box and a tabbed interface with 'Details', 'Visualization', 'Notes (0)', and 'Term Mappings (1)'. The 'Term Mappings (1)' tab is active, showing a table of mappings. On the left, a tree view shows the ontology structure: foaf:Document, http://www.w3.org/2003/01/geo/wgs84_pos#SpatialThing (expanded to show gn:Feature), skos:Concept, and skos:ConceptScheme.

Jump To:

foaf:Document
http://www.w3.org/2003/01/geo/wgs84_pos#SpatialThing
 gn:Feature
skos:Concept
skos:ConceptScheme

Details Visualization Notes (0) **Term Mappings (1)**

[Create new mapping](#)

MAPPING TO	SOURCE	RELATIONSHIP TYPE	MAPPED BY	MAPPED ON	NOTES
gml: Feature (Geoconcepts ontology Lite)	BioPortal UI	http://www.w3.org/2004/02/skos/core#exactMatch	garybc	04/10/12	View Notes