

The ICAN Prototype



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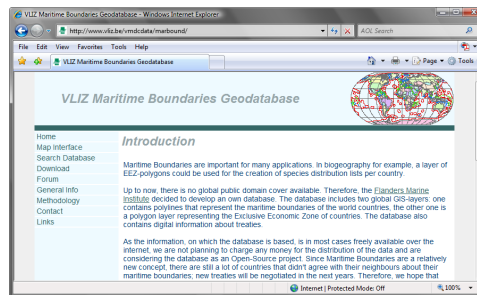
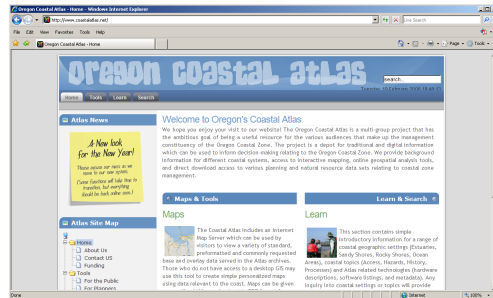
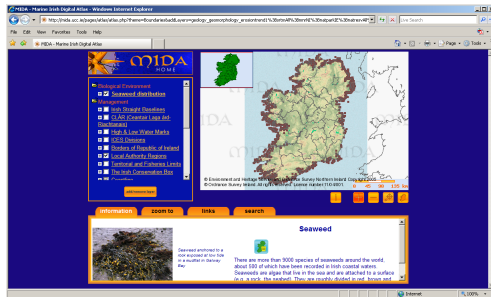
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liz.odea@ecy.wa.gov



Problem

- Outline
- Problem
- Terminology
- Idea
- Approach
- Architecture
- Ontologies
- Mappings
- Query Rewriting
- Progress to Date
- Demonstration
- Conclusion
- Future Work

- Interoperability of distributed autonomous and heterogeneous coastal Web atlases (CWA)





Idea

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- Connect individual coastal atlases to an integrated global atlas



Global atlas

Local atlases





Approach

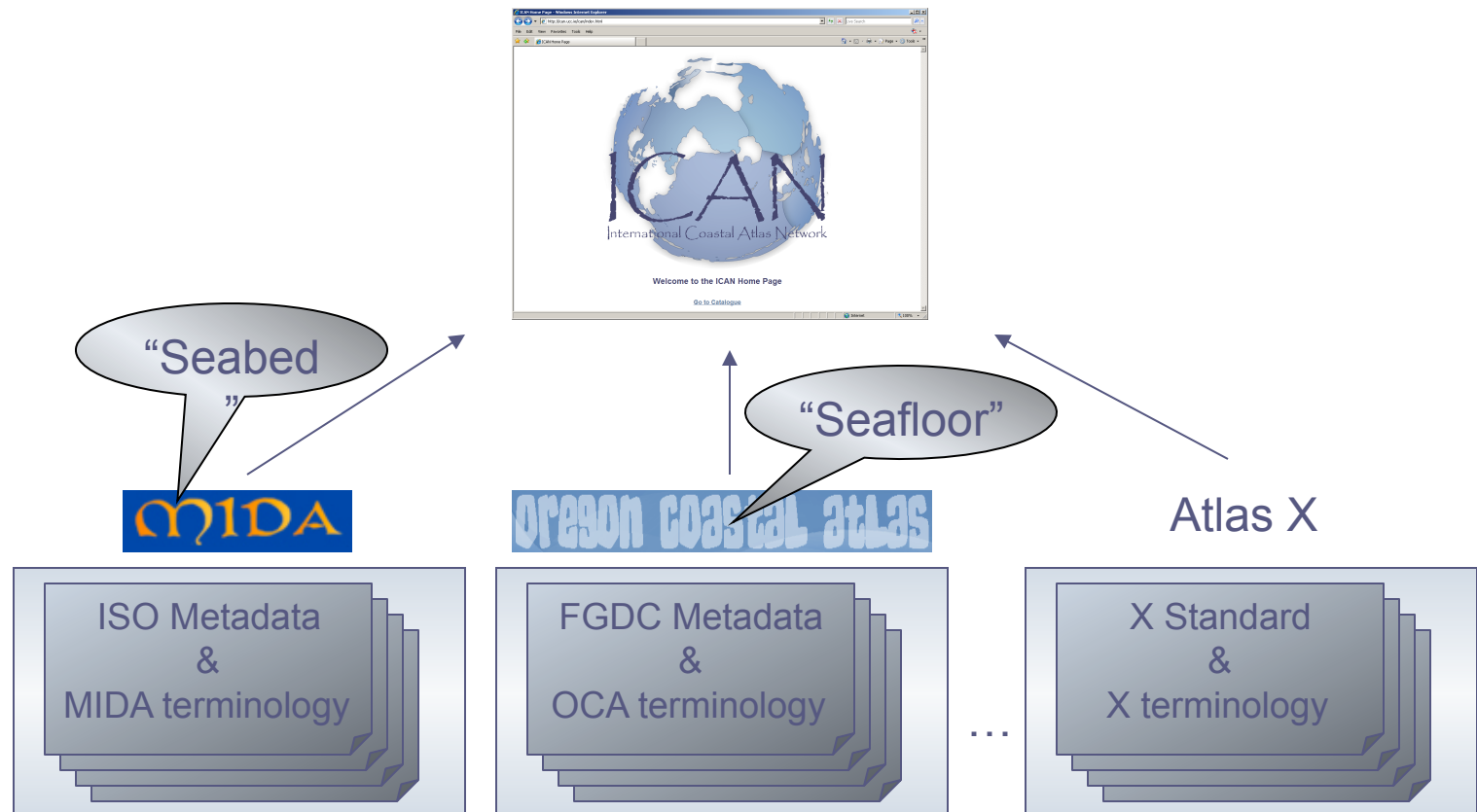
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- Centralised system
 - Resources are accessed through one central system (ICAN global atlas)
- Virtual integration approach
 - Data are not copied into the global Atlas
- Local atlases keep autonomy
 - Each data atlas is autonomous and organises resources in its own way

Approach

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- Current focus is Metadata interoperability
- Prototype with a Coastal Erosion focus





Demonstration

- Outline
- Problem
- Terminology
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- **Demonstration**
- Conclusion
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<http://ican.ucc.ie>





Demonstration



ICAN Catalogue



Network



Administration



Event Monitor

Introduction

Welcome to the ICAN Atlas Mediator v.2.0 !

Please note: This site is a prototype still in development.

This tool is designed as a proof-of-concept to demonstrate how Coastal Web Atlases from different parts of the world can be linked. It demonstrates an easy way to search for coastal geographic data from any atlas that is connected to the ICAN Prototype.

This prototype focuses on a Coastal Erosion use case for demonstration purposes. Ontologies are used to connect metadata databases about geographic data. Each Coastal Web Atlas has independent ontologies of their coastal erosion data. Each are mapped to the ICAN global coastal erosion ontology. These ontologies work behind-the-scenes to simplify searching of multiple atlases at once. Think of this web page as your computer desktop. You use it in a similar way.

To begin, simply select one of the icons on the right of the window:

- ICAN Catalogue: Search multiple Coastal Web Atlases at one time.
- Network: Search one Coastal Web Atlas in the ICAN Network.
- Administration: For Administrators only.
- Event Monitor: See what happens in the background when you search.

For more information about ICAN and this prototype, please visit <http://www.icoastalatlant.net>. To provide feedback, please submit a comment in the ICAN Discussion Room [link: <http://ican.science.oregonstate.edu/forum>] under Technology and Data.

Thanks,

Close

International Coastal Atlas Network



18:27



Demonstration



ICAN Catalogue



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Open the ICAN Catalogue



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File View Help

What? Where? Who? Results

Theme

- ▼ All Themes
 - ▼ Agents of Coastal Change
 - Natural Processes
 - Human Activity
 - Sediment Budget
 - ▼ Human Responses to Coastal Change
 - Emergency Response and Disaster Recovery
 - Mitigation Strategies and Preparedness
 - Legislation and Policy
 - ▼ Effects of Coastal Change
 - Shoreline Accretion, Shoaling and Emergence
 - Shoreline Erosion, Flooding and Submergence
 - Habitat Alteration
 - Administrative Boundaries



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Demonstration



ICAN Catalogue



Network



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Event Monitor

Catalogue - ICAN

File View Help

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Catalogue - ICAN

File View Help

What? Where? Who? Results

Select Nodes

MIDA OCA MarBound China



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Demonstration



ICAN Catalogue



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Event Monitor

Catalogue - ICAN

File View Help

What? Where? Who? Results

Select Search Catalogue

MIDA OCA MarBound China



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Demonstration



ICAN Catalogue



Network



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Event Monitor

Catalogue - ICAN

File View Help

What? Where? Who? Results

Atlas	Title	Abstract	Keywords
	Coastal Geology	This dataset has been created by the EuroSION project at a scale 1:100,000 and in vector format for the European coast. The dataset shows morpho-sedimentological patterns, geological patterns, erosion trends and the existence of coastal defence works along the Irish coast.	<i>SurfaceGeology, Ireland</i>
	Coastal Geomorphology	This dataset has been created by the EuroSION project at a scale 1:100,000 and in vector format for the European coast. The dataset shows morpho-sedimentological patterns, geological patterns, erosion trends and the existence of coastal defence works along the Irish coast.	<i>CoastalTypology, NaturalCoastalFeatures, Ireland</i>
	Coastal Vulnerability to Sea-Level Rise: A Preliminary Database for the U.S. Pacific Coast, USGS, 2001	The goal of this project is to provide a preliminary overview, at a National scale, the relative susceptibility of the Nation's coast to sea-level rise through the use of a coastal vulnerability index (CVI). This initial classification is based upon the variables geomorphology, regional coastal slope, tide range, wave height, relative sea-level rise and shoreline erosion and accretion rates. The combination of these variables and the association of these variables to each other furnish a broad overview of regions where physical changes are likely to occur due to sea-level rise.	<i>Tide Range, Wave Height, Beach Erosion, Erosion, CommunityVulnerability...</i>
	Oregon Statutory Vegetation Line (ORS 390.77)	This shapefile represents the line of the statutory vegetation line based on ORS 390.77. This is a jurisdictional line that determines the regulatory authority of Oregon State Parks and Recreation to regulate development on the beach.	<i>statutory vegetation line, Erosion, PublicTrustResources, ocean shore, Goal18...</i>
		This dataset is a mapped inventory of ocean front tax lots and the status of their eligibility for shoreline protective structure (SPS) permits. Under Statewide Planning Goal 18, Implementation Requirement #5, SPS may be permitted only where development existed on January 1, 1977. Development is defined as	

45 Elements



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Demonstration



ICAN Catalogue



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Catalogue - ICAN

File View Help

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Metadata Viewer - Coastal Geomorphology

Summary ISO 19139



This dataset has been created by the EuroSION project at a scale 1:100,000 and in vector format for the European coast. The dataset shows morpho-sedimentological patterns, geological patterns, erosion trends and the existence of coastal defence works along the Irish coast.

Coastal Geomorphology

19f030c5-acf5-4fbe-9699-176b1404fe6b

Keywords CoastalTypology, NaturalCoastalFeatures, Ireland

Source MIDA (<http://mida.ucc.ie>)

Language eng

Rights copyright,otherRestrictions

Close

This dataset is a mapped inventory of ocean front tax lots and the status of their eligibility for shoreline protective structure (SPS) permits. Under Statewide Planning Goal 18, Implementation Requirement #5, SPS may be permitted only where development existed on January 1, 1977. Development is defined as

45 Elements



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Metadata Viewer - Coastal Geomorphology

Summary ISO 19139

```

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xmlns:csw="http://www.opengis.net/cat/csw">
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```

Close

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45 Elements



Demonstration



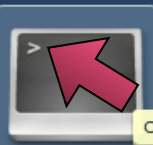
ICAN Catalogue



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Open Event Monitor

Event Monitor

International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

18:42



Demonstration



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Event Monitor

```
ICAN - Event Monitor
File View Help
ICAN> GetRecords request received
ICAN> -- Selected nodes: All
ICAN> -- Loading atlas registry file [Success]
ICAN> -- Processing query for MIDA
ICAN> ---- Loading ontologies and inferencing mappings for MIDA [Success]
ICAN> ---- Translating client keywords and rewriting global query [Success]
ICAN> ---- Executing local query [Success]
ICAN> ---- MIDA: 35 results returned
ICAN> ---- Done
ICAN> -- Processing query for OCA
ICAN> ---- Loading ontologies and inferencing mappings for OCA [Success]
ICAN> ---- Translating client keywords and rewriting global query [Success]
ICAN> ---- Executing local query [Success]
ICAN> ---- OCA: 10 results returned
ICAN> ---- Done
ICAN> -- Processing query for MarBound
ICAN> ---- Loading ontologies and inferencing mappings for MarBound [Success]
ICAN> ---- Translating client keywords and rewriting global query [Success]
ICAN> ----- MarBound will not be queried: No matching keywords or spatial extent
ICAN> ---- Done
ICAN> -- Processing query for China
```

International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

18:44



Demonstration



ICAN Catalogue



Browse Atlas Network



Administration



Event Monitor

International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

18:45



Demonstration



ICAN Catalogue



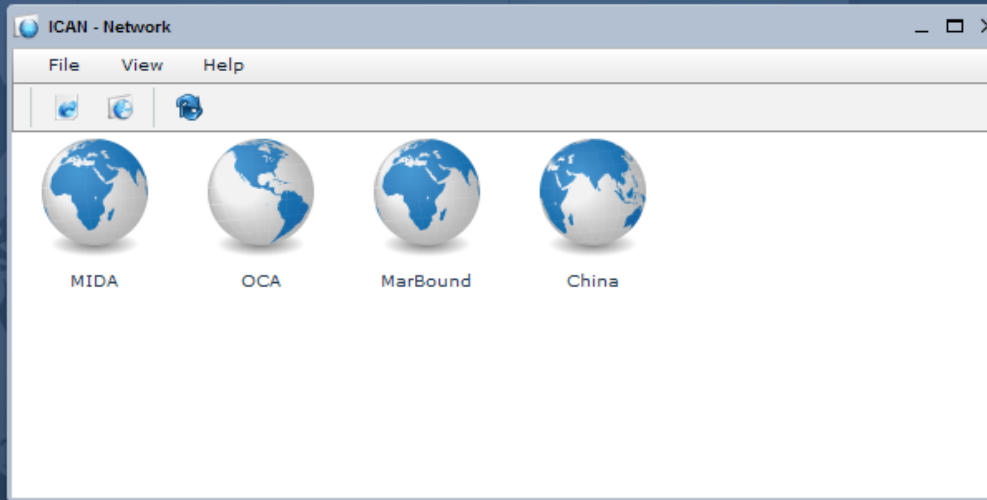
Network



Administration



Event Monitor



International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

18:47



Demonstration



ICAN Catalogue



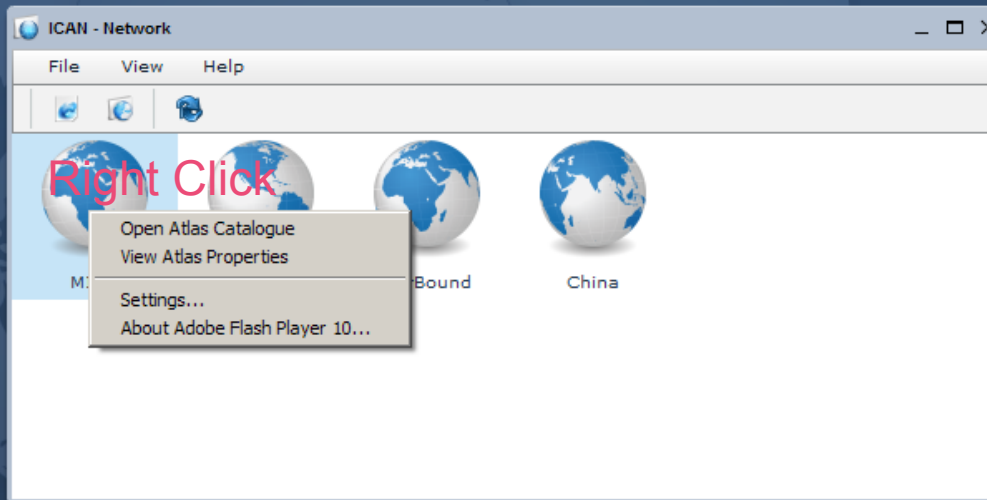
Network



Administration



Event Monitor



International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

18:48



Demonstration



ICAN Catalogue



Network



Administration



Event Monitor

ICAN - Network

Node Properties - MIDA

File

General Advanced



MIDA

Marine Irish Digital Atlas

Organization Coastal and Marine Resources Centre (CMRC) - University College Cork (UCC)

Town Cork

State

 Ireland

The Marine Irish Digital Atlas (MIDA) is a comprehensive resource for coastal and marine information and spatial data in Ireland. MIDA provides an overview of topics related to the Irish coast, as well as an interactive atlas where you can choose layers from various organisations to view and query.

Close



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

18:49



Demonstration



ICAN Catalogue



Network



Administration



Event Monitor

Catalogue - MIDA

File View Help

What? Where? Results

Theme

- ▼ All Themes
 - ▼ Management
 - ▼ Heritage
 - BuiltHeritage
 - ▼ History
 - Shipwrecks
 - ▼ NationalMonuments
 - NationalMonumentsInStateCare
 - HistoricalCoastlines
 - ▼ WaterQuality
 - BathingWaterQuality
 - NutrientSampleSites
 - CoastalMonitoring
 - ▶ ProtectedAreas
 - ▶ Reserves
 - ▶ PhysicalEnvironment
 - ▶ Socio-EconomicActivity

International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

Node Properties - MI...

18:51



Demonstration



ICAN Catalogue



Network



Administration



Event Monitor



International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

Node Properties - MI...

18:52



Demonstration



ICAN Catalogue



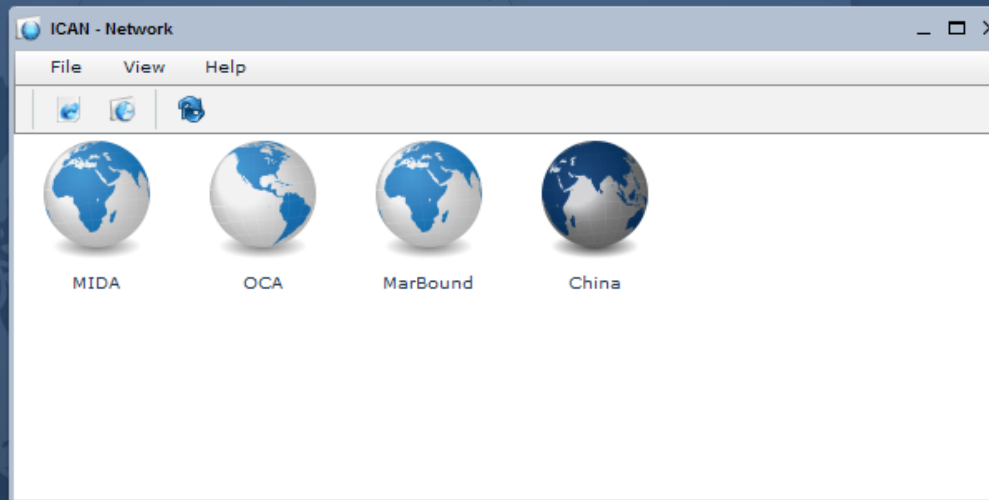
Network



Administration



Event Monitor



International Coastal Atlas Network



Metadata Viewer - Co...

Catalogue - ICAN

ICAN - Event Monitor

Node Properties - MI...

18:53



Conclusion

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- Future Work

- Efficient solution for facilitating interoperability
- This is a first step in atlas interoperability focusing only on metadata and catalogue services
- Key future goal: Web Map Services



Thank You

http://ican.science.oregonstate.edu/ican_tech

For more technical
information, please visit
this web site above,

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