

# IC\_11 Semantic Linking Framework

## 1. Background

### 1.1 Short description

A linking semantic framework will be established based on the RM ontology of ENVRI which allows for structural and semantic harmonization between the resources of RIs, involved in ENVRIPlus

### 1.2 Contact

Background	Contact Person	Organization	Contact email	
_ICT	e-Infrastructure]_ (Use Case Proposor)	Barbara Magagna	Umweltbundesamt GmbH	<a href="mailto:Barbara.magagna@umweltbundesamt.at">Barbara.magagna@umweltbundesamt.at</a>
_ICT	e-Infrastructure]_ (Agile Group Leader)	Zhiming Zhao Paul Martin	University of Amsterdam	<a href="mailto:z.zhao@uva.nl">z.zhao@uva.nl</a> <a href="mailto:p.w.martin@uva.nl">p.w.martin@uva.nl</a>

### 1.3 Use case type

*Implementation case*

### 1.4 Scientific domain and communities

#### Scientific domain

[Atmosphere | Biosphere | hydrosphere | geosphere]  
all

#### Community

*Data Curation | Data Publication | Data Service Provision Please check*

#### Behavior

Semantic Harmonisation, data discovery and access

#### Roles

Semantic Mediator, Service Provider

## 2. Detailed description

### Objective and Impact

Linking Framework consisting of structures and semantics established across RIs  
Precondition to allow reuse of data and metadata across domains, thus raising the value of expensive data.

### Challenges

- (1) Establishment of the guidance for the work
- (2) Identification of basic elements of the semantic framework
- (3) Identification of the existing and needed conceptual models
- (4) Work with different formal languages to express conceptual models (UML, OWL, CERIF, )
- (5) Harmonization of existing conceptual models
- (6) Creating harmonized semantic framework

### Detailed scenarios

The benefit of semantic linking of different information resources (metadata and data) will be shown on specific examples

1. merging / harmonising existing vocabularies for metadating across selected RIs (e.g. LTER Europe / ICOS / Interact)
2. merging models of research site description using semantic technologies (e.g. OWL, etc.) across selected RIs as a showcase for semantic integration (as is a contribution to a harmonised discovery of research/observation sites across the RIs)Technical status and requirements

### Implementation plan and timetable

1)Timeline: tbd

2)Milestones:

- (1) Collection of existing semantic resources and conceptual models
- (2) Collection of needed conceptual elements
- (3) Identify needed conceptual harmonization
- (4) Identify existing usable conceptual models
- (5) Identify technologies and good practices within ENVRI+ and outside which should be used
- (6) Carry out conceptual harmonization (link concepts)
- (7) Embed conceptual model in existing linked vocabularies (e.g. LOV, bioPortal, ....)
- (8) Define needed adaptations within existing services (Data services, metadata services, data presentations)
- (9) Carry out show cases of existing RIs (e.g. ANAEE-F, LTER, INTERACT, ...)

3)Involved RIs (LTER, ICOS, ANAEE-F, LIFEWATCH Italy, INTERACT...)

4)Links to work packages/tasks: 5.3, 8.2, 8.3

5)Allocation of resources: tbd

## Expected output and evaluation of output

Reuse of data through discovery of data following the structure of the linking framework (start the search at e.g. "sites" or e.g. "parameters" or e.g. "methods" etc and follow the links to the according data)

## External Links

1. IC\_11 Notebook: <https://envriplus.manageprojects.com/projects/wp9-service-validation-and-deployment-1/notebooks/635+>