A Semantic Retrieval System for Remote Sensing Web Platforms
Semantic is the *meaning* and *logic* part of the data

Why is *semantic* important?
Reducing the **semantic gap** between services providers and end-users thank to **Ontologies** and **Natural Language Processing**
Semantic conceptual model for triple store.

Definition of what a **processing chain** is.

What is it made of?

Natural Language Processing

How to program computers to process and analyze large amounts of natural language data.
Technical workflow

User Query in Natural Language → PoS Tagging → Lemmatizer → Highlighted Words

Subgraphs extractor → EORS Thesaurus

UNESCO Thesaurus → Related Words

GeoNames GraphDB → Expanded Query

Weights

Classifier → Classification of Services
Query expressed in a natural language formulation:

How many trees are in a forest in Enschede?
Part of Speech Tagging
process of marking up a word in a text (corpus)
as corresponding to a particular part of speech

How many trees are in a forest in Enschede?
Lemmatization
process of grouping together the inflected forms of a word
so they can be analysed as a single item

how many tree be forest Enschede

Result: Array of highlighted lemma words
3 possibilities:
1. Reference thesaurus
2. Spatial content
3. Exceptions
Need to structure remote sensing words in a shared common and well-described format.

There is no remote sensing thesaurus.

Need to build a dedicated one: UNESCO
Subgraph extraction and reconstruction

Simple Knowledge Organisation System

Edges definitions
Geographic content

Contextualisation based on toponyms and place names:
- Nearest neighbours
- Administrative subdivisions

Contextualisation using the background map
Results

Weighted average based on the occurrences between the 3 arrays and the EOROntology

<table>
<thead>
<tr>
<th>N#</th>
<th>Service</th>
<th>Count</th>
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<td>3</td>
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<tr>
<td>2</td>
<td>SPB03S_TreeCountingProcedure</td>
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<td>SPB01S_TreeSpeciesClassification</td>
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Prototype

EARTH OBSERVATION REGIONS!

http://www.eoregions.com/
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