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photon and neutron
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Harvesting by EOSC repos, OAI-PMH, extended schemas

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European Spallation Source

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Harvesting vs authenticated search

- For EOSC/OpenAire/b2find, we need to provide all our metadata to be “harvested”. No login, anyone can access, truly open data
- For analysis/WP4 users, can query for their own (embargoed) metadata. Requires login, authentication, securing data and metadata

re3data.org REGISTRY OF RESEARCH DATA REPOSITORIES

http://doi.org/10.17616/R31NJMKO

SciCat

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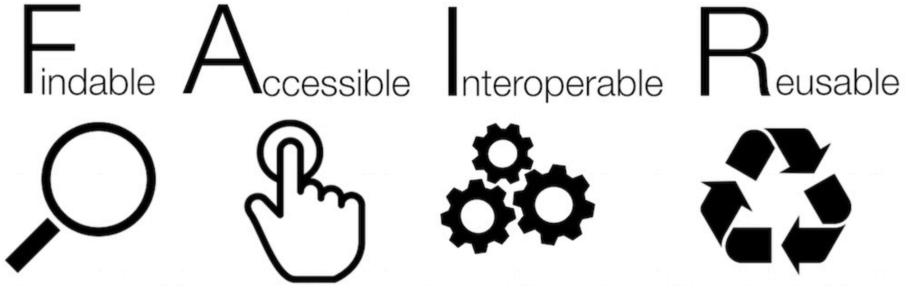
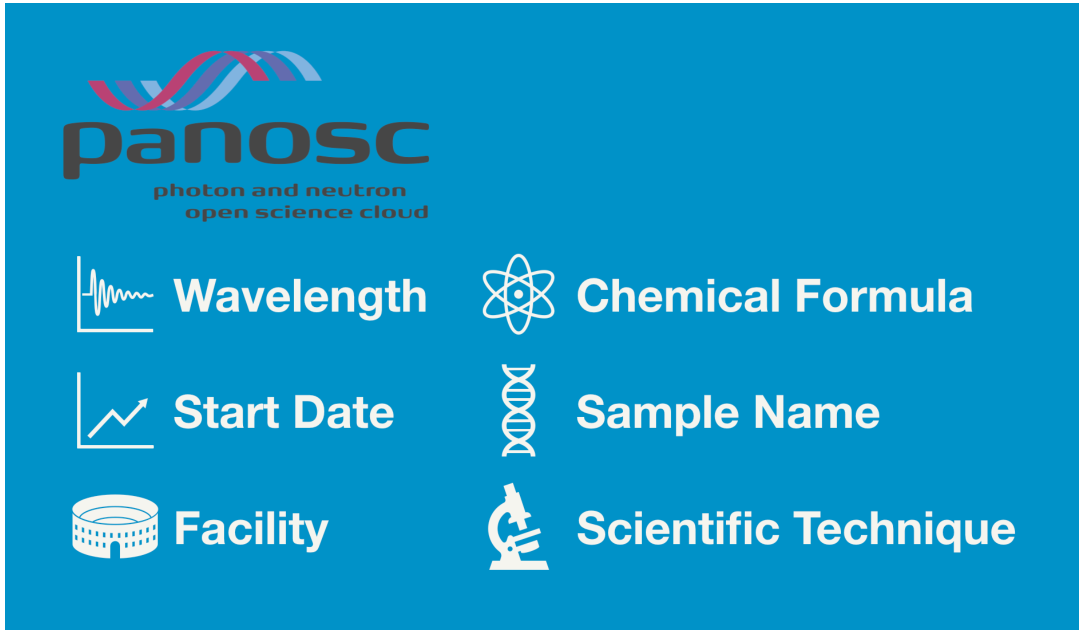
Metadata standard format(s)

- Supported formats, (OAI) Dublin Core and PaNOSC format





Wavelength

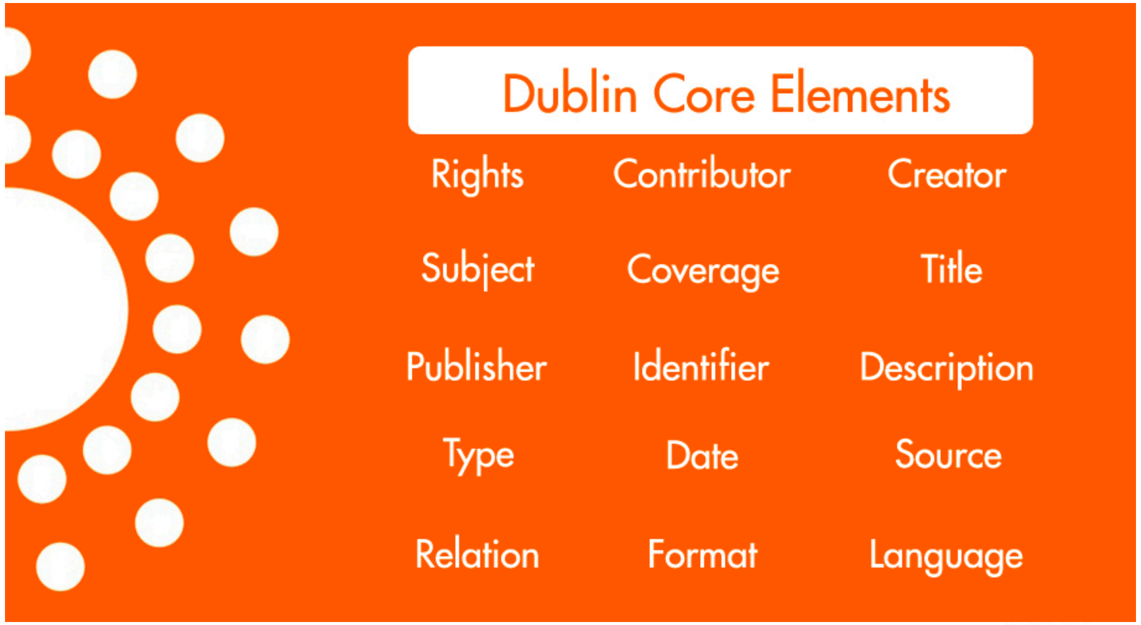
Chemical Formula

Start Date

Sample Name

Facility

Scientific Technique



Dublin Core Elements

Rights	Contributor	Creator
Subject	Coverage	Title
Publisher	Identifier	Description
Type	Date	Source
Relation	Format	Language

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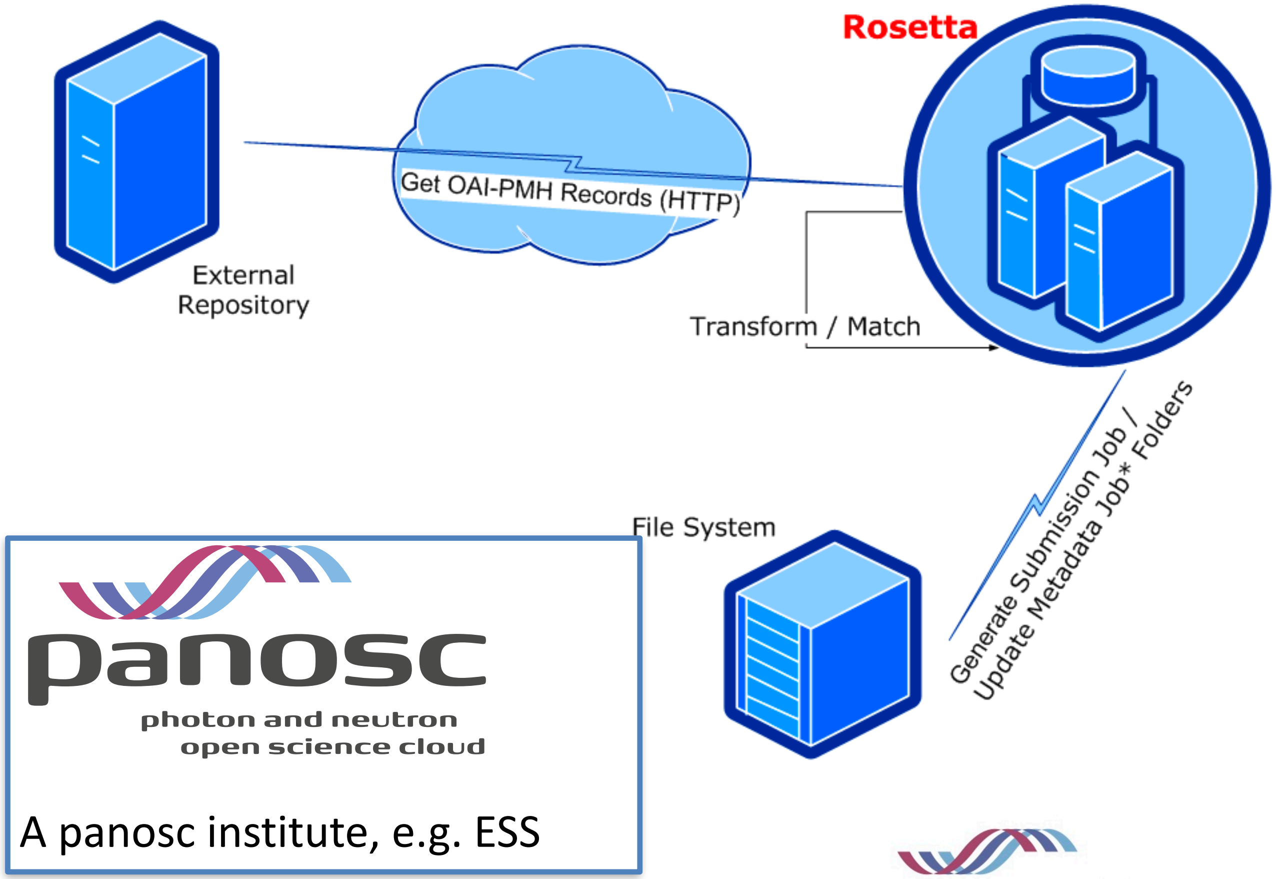
OAI-PMH

- OAI-PMH (Open Archives Initiative - Protocol for Metadata Harvesting)
- 6 verbs
  - Identify
  - ListMetadataFormats
  - ListRecords
  - GetRecord
  - ListSets
  - ListIdentifiers
- https://www.openarchives.org/pmh/


Rosetta
Get OAI-PMH Records (HTTP)
External Repository
Transform / Match
File System
Generate Submission Job / Update Metadata Job* Folders
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A panosc institute, e.g. ESS

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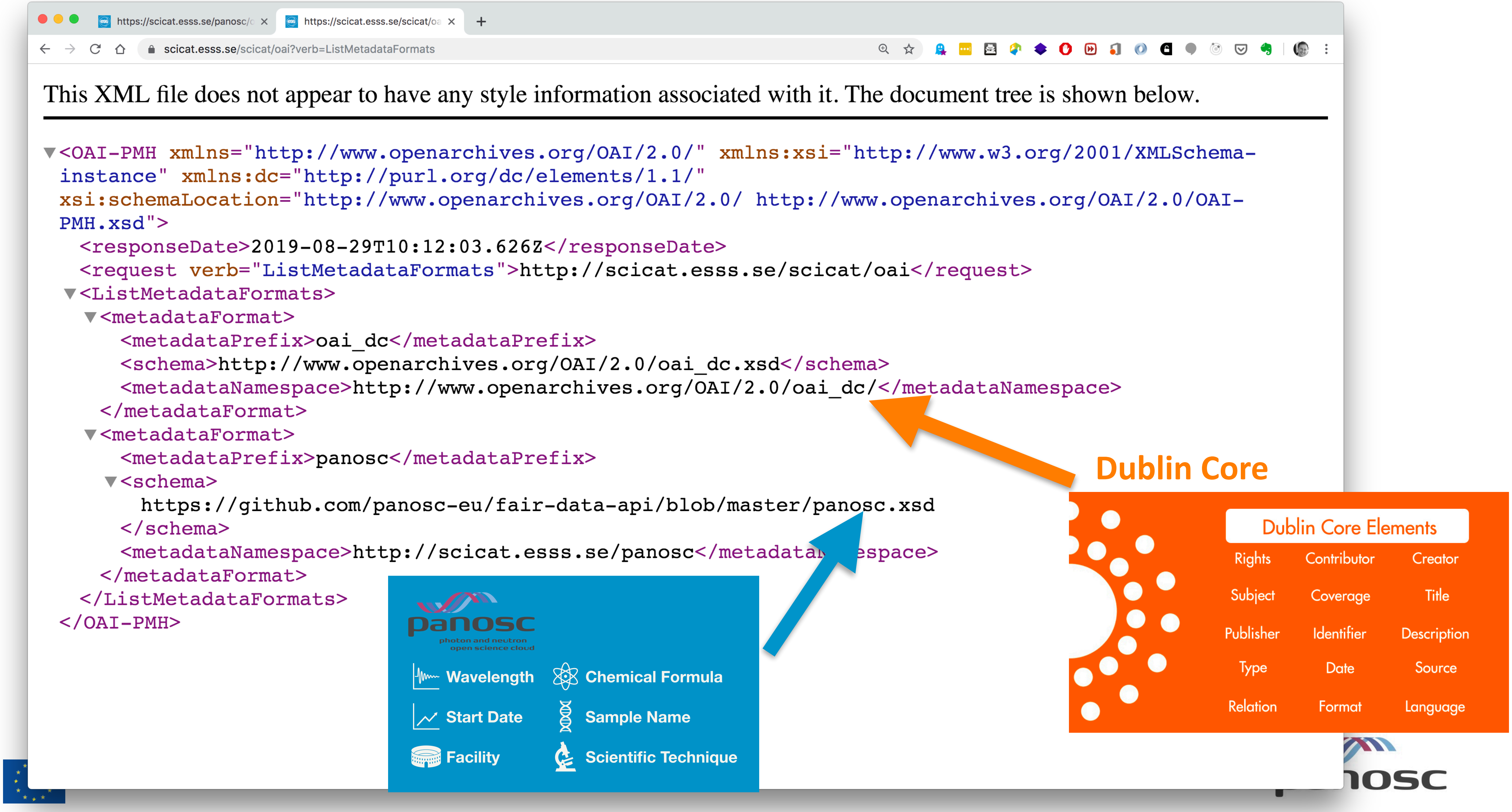
https://scicat.esss.se/panosc/c
https://scicat.esss.se/scicat/oa
scicat.esss.se/scicat/oai?verb=ListMetadataFormats

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
▼<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
 instance" xmlns:dc="http://purl.org/dc/elements/1.1/"
 xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-
 PMH.xsd">
   <responseDate>2019-08-29T10:12:03.626Z</responseDate>
   <request verb="ListMetadataFormats">http://scicat.esss.se/scicat/oai</request>
  ▼<ListMetadataFormats>
    ▼<metadataFormat>
       <metadataPrefix>oai_dc</metadataPrefix>
       <schema>http://www.openarchives.org/OAI/2.0/oai_dc.xsd</schema>
       <metadataNamespace>http://www.openarchives.org/OAI/2.0/oai_dc/</metadataNamespace>
     </metadataFormat>
    ▼<metadataFormat>
       <metadataPrefix>panosc</metadataPrefix>
      ▼<schema>
         https://github.com/panosc-eu/fair-data-api/blob/master/panosc.xsd
       </schema>
       <metadataNamespace>http://scicat.esss.se/panosc</metadataNamespace>
     </metadataFormat>
   </ListMetadataFormats>
 </OAI-PMH>
```

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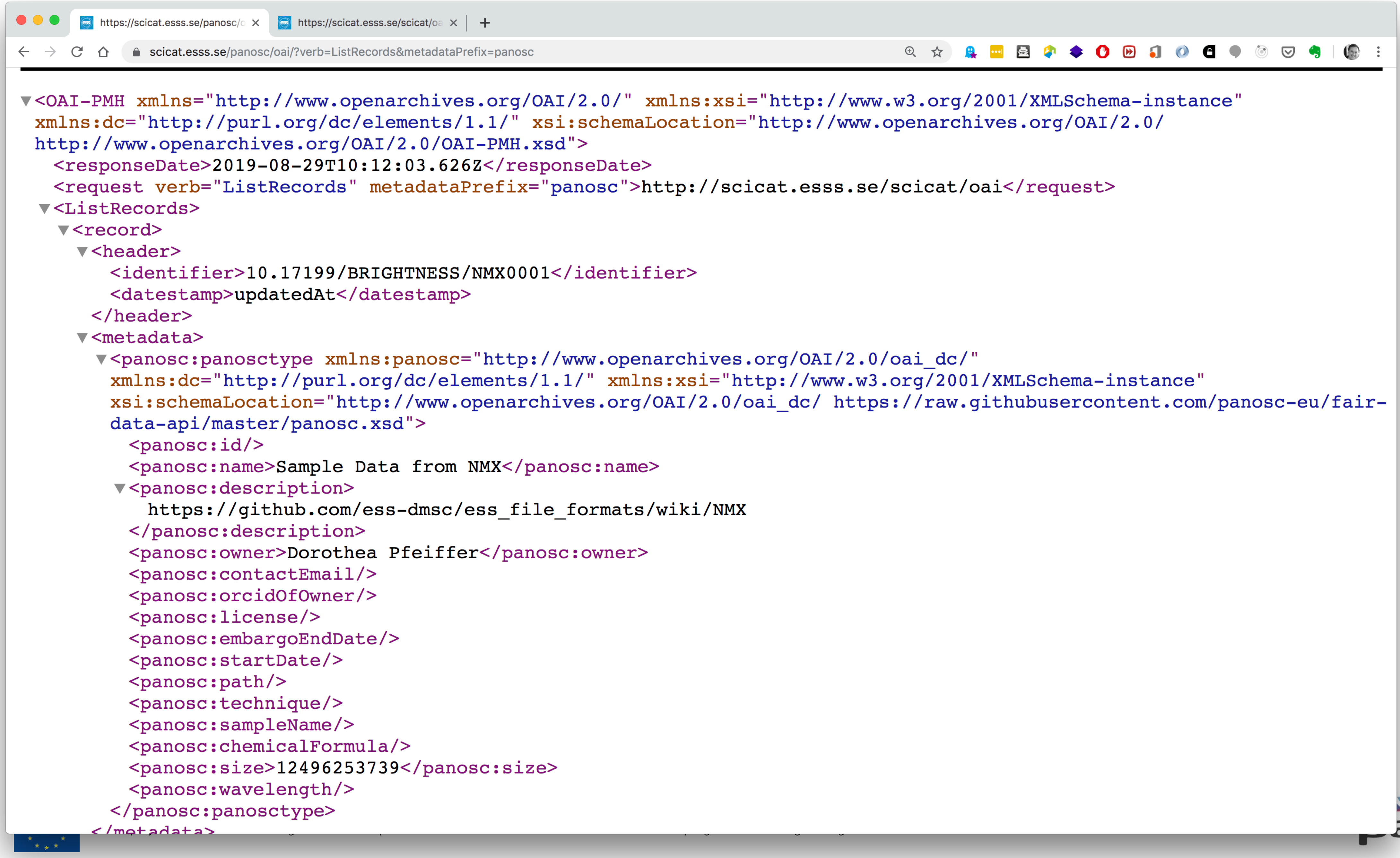
https://scicat.esss.se/panosc/c
https://scicat.esss.se/scicat/oa
scicat.esss.se/panosc/oai/?verb=ListRecords&metadataPrefix=panosc

```
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:dc="http://purl.org/dc/elements/1.1/" xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/
http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
  <responseDate>2019-08-29T10:12:03.626Z</responseDate>
  <request verb="ListRecords" metadataPrefix="panosc">http://scicat.esss.se/scicat/oai</request>
  <ListRecords>
    <record>
      <header>
        <identifier>10.17199/BRIGHTNESS/NMX0001</identifier>
        <datestamp>updatedAt</datestamp>
      </header>
      <metadata>
        <panosc:panosctype xmlns:panosc="http://www.openarchives.org/OAI/2.0/oai_dc/"
        xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai_dc/ https://raw.githubusercontent.com/panosc-eu/fair-
        data-api/master/panosc.xsd">
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          <panosc:name>Sample Data from NMX</panosc:name>
          <panosc:description>
            https://github.com/ess-dmsc/ess_file_formats/wiki/NMX
          </panosc:description>
          <panosc:owner>Dorothea Pfeiffer</panosc:owner>
          <panosc:contactEmail/>
          <panosc:orcidOfOwner/>
          <panosc:license/>
          <panosc:embargoEndDate/>
          <panosc:startDate/>
          <panosc:path/>
          <panosc:technique/>
          <panosc:sampleName/>
          <panosc:chemicalFormula/>
          <panosc:size>12496253739</panosc:size>
          <panosc:wavelength/>
        </panosc:panosctype>
      </metadata>
```

OAI-PMH pros and cons

Pros:

- ✅ Well supported by e.g. OpenAire
- ✅ Lots of versions available
- ✅ Little implementation work required

Cons:

- ❌ OAI-PMH doesn’t scale
- ❌ In order to change some entries, harvesters have to harvest everything again
- ❌ Change not supported

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ResourceSync

- Upgrade/rewrite of OAI-PMH
- Developed to address missing parts of PMH
- Supports Change List, Change Dump, Versioning,
- Sitemap technology so XML files broken into 50 MB chunks
- http://www.openarchives.org/rs/toc
- Works for any search engine

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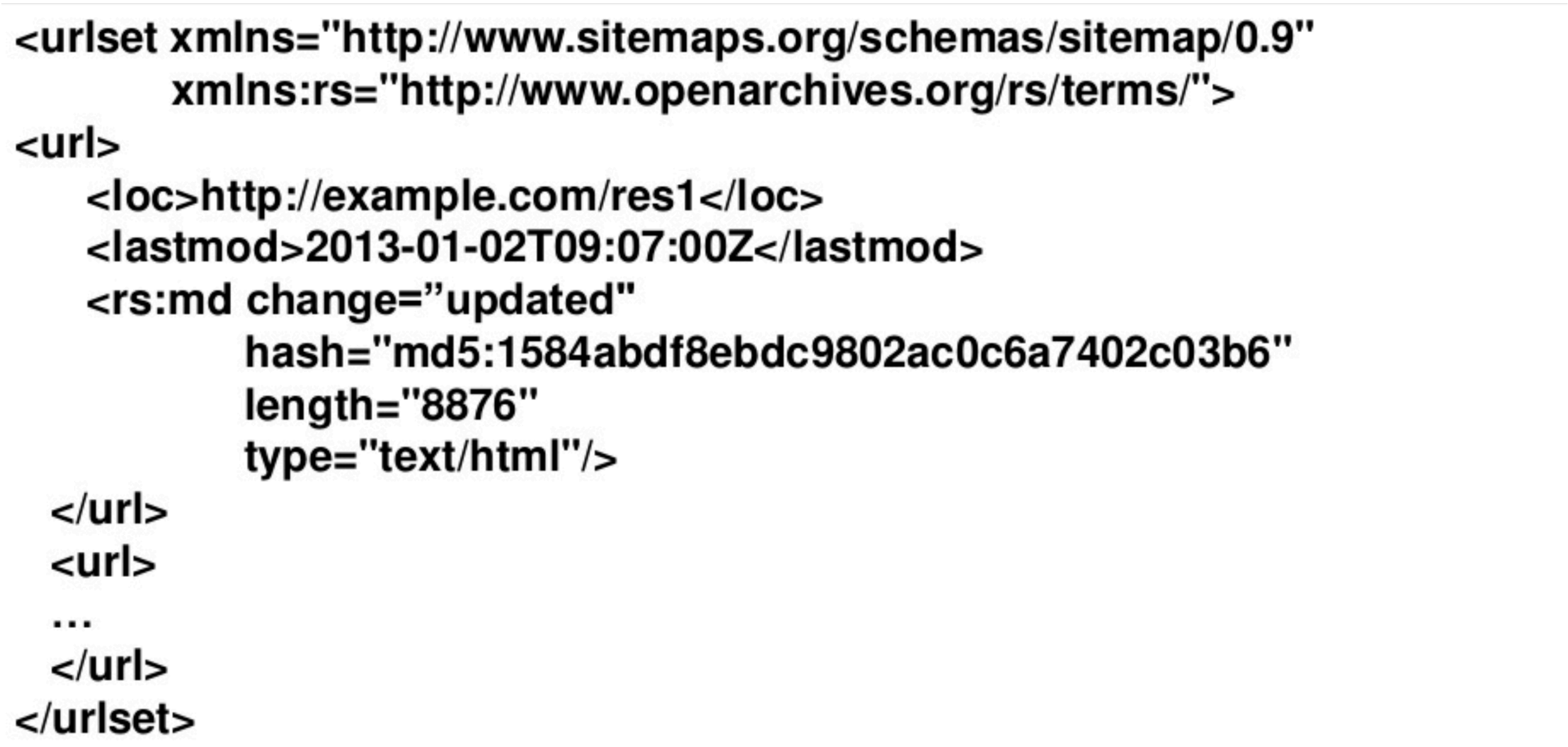
ResourceSync



```
<urlset xmlns="http://www.sitemaps.org/schemas/sitemap/0.9"
            xmlns:rs="http://www.openarchives.org/rs/terms/">
<url>
      <loc>http://example.com/res1</loc>
      <lastmod>2013-01-02T09:07:00Z</lastmod>
      <rs:md change=”updated"
                   hash="md5:1584abdf8ebdc9802ac0c6a7402c03b6"
                   length="8876"
                   type="text/html"/>
   </url>
   <url>
   ...
   </url>
</urlset>
```

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Roadmap

1. Deploy OAI-PMH at 6 PaNOSC institutes
2. Register at re3data
3. Provide data to OpenAire
4. Upgrade to ResourceSync

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