



**Course title:** EOTIST Standard course  
**Course subject:** Computer Sciences  
**Teacher:** Lluís Pesquer, Ester Prat

## LESSON SC2 - EXERCISE METADATA ROLES



EOTIST project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 952111  
[H2020 WIDESPREAD-05-2020 (Twinning)]





## TABLE OF CONTENTS

Objectives.....	1
Key elements.....	1
Software.....	1
Data.....	1
1. Document Core ISO metadata in XML format .....	2
ISO Core Elements.....	4
2. Automatic extraction of data and metadata edition in XML .....	11

## OBJECTIVES

Document the Core ISO metadata in XML format

## KEY ELEMENTS

Download, visualization. Core ISO elements.

## SOFTWARE

GeM+

## DATA

Camargue\_Hydroperiod\_2016.xml

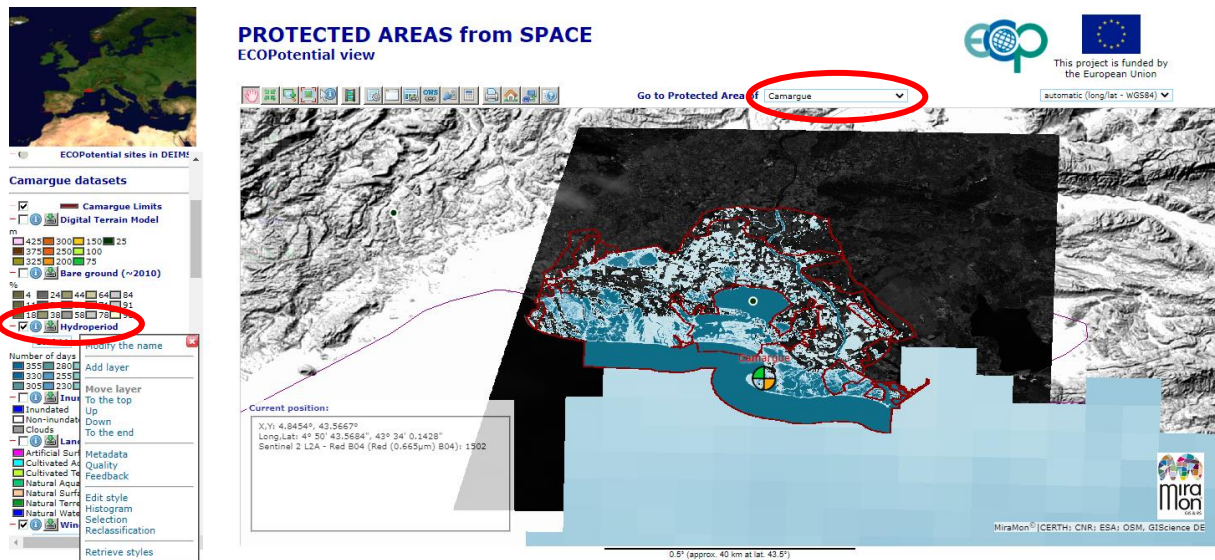
Es\_Zepa\_SPA\_MedalpatI\_202012.shp



## 1. DOCUMENT CORE ISO METADATA IN XML FORMAT

Download the XML metadata from the ECOPOTENTIAL project server<sup>1</sup>:

- <https://ecopotential.grumets.cat/>
- Camargue hydroperiod





maps.ecopotential-project.eu/metadades/Camargue/EO\_derived/Hydroperiod/Camargue\_Hydroperiod\_2016.xml

No secur | maps.ecopotential-project.eu/metadades/Camargue/EO\_derived/Hydroperiod/Camargue\_Hydroperiod\_2016.xml

### Camargue: Hydroperiod map from 2016\_09\_01 to 2017\_08\_31, estimated using Sentinel\_2 inundation maps, resolution: 10m

[Reference System Information](#)  
[Identification Information](#)  
[Distribution Information](#)  
[Data Quality Information](#)

   
This project is funded by the European Union

**Metadata:**  
File identifier:  
Camargue\_Hydroperiod\_from\_1st\_Sept\_2016\_to\_31st\_Aug\_2017\_using\_Sentinel\_2\_inundation\_maps  
Language:  
Language Code:  
eng  
Character set:  
Character set code:  
MD\_CharacterSetCode\_utf8  
Hierarchy level:  
Scope code:  
dataset  
Metadata author:  
Responsible party:  
Organisation name:  
Centre for Research and Technology Hellas  
Contact info:  
Contact:  
Address:  
Electronic mail address:  
imanakos@iti.gr  
Role:  
Role code:  
pointOfContact  
Date stamp:  
2018-04-05  
Metadata standard name:  
ISO19115  
Metadata standard version:  
2003/Cor.1:2006  
[Return To Index](#)

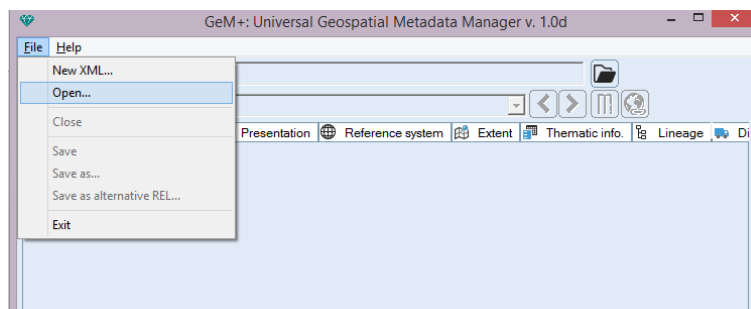
<sup>1</sup> In case the server is not running, you can find the XML file in the Data folder:  
Camargue\_Hydroperiod\_2016.xml

Open the file with a Notepad or with an XML editor:

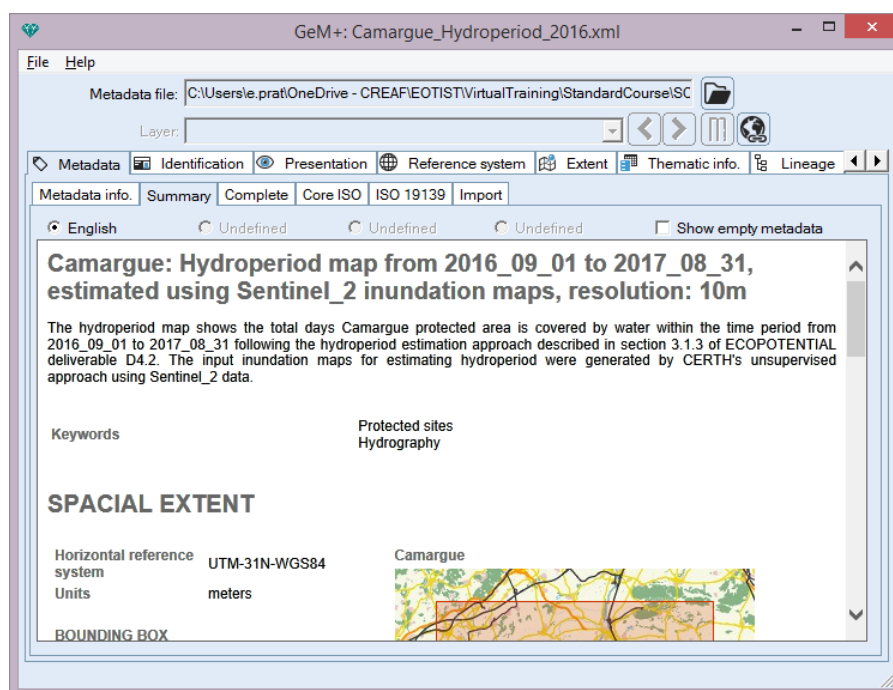
```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <gmd:MD_Metadata xsi:schemaLocation="http://www.isotc211.org/2005/gmd http://schemas.opengis.net/iso/19139/20060504/gmd/gmd.xsd
  http://www.isotc211.org/2005/gmx http://schemas.opengis.net/iso/19139/20060504/gmx/gmx.xsd" xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gco="
  http://www.isotc211.org/2005/gco" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:gml="http://www.opengis.net/gml" xmlns:xlink="
  http://www.w3.org/1999/xlink" xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:gmx="http://www.isotc211.org/2005/gmx">
3   <gmd:fileIdentifier><gco:CharacterString>Camargue_Hydroperiod_from_1st_Sept_2016_to_31st_Aug_2017_using_Sentinel_2_inundation_maps</gco:CharacterString></
  gmd:fileIdentifier>
4   <gmd:language><gmd:LanguageCode codeList="https://www.isotc211.org/2005/resources/Codelist/ML_gmxCodeLists.xml#LanguageCode" codeListValue="eng">eng</
  gmd:LanguageCode></gmd:language>
5   <gmd:characterSet><gmd:MD_CharacterSetCode codeList="https://www.isotc211.org/2005/resources/Codelist/ML_gmxCodeLists.xml#MD_CharacterSetCode"
  codeListValue="utf8">UTF-8</gmd:MD_CharacterSetCode></gmd:characterSet>
6   <gmd:hierarchyLevel><gmd:MD_ScopeCode codeList="https://www.isotc211.org/2005/resources/Codelist/ML_gmxCodeLists.xml#MD_ScopeCode" codeListValue="
  dataset">Layer</gmd:MD_ScopeCode></gmd:hierarchyLevel>
7   <gmd:hierarchyLevelName><gco:CharacterString>Layer-sheet</gco:CharacterString></gmd:hierarchyLevelName>
8   <gmd:contact><gmd:CI_ResponsibleParty><gmd:organisationName><gco:CharacterString>Centre for Research and Technology Hellas</gco:CharacterString></
  gmd:organisationName><gmd:contactInfo><gmd:CI_Contact><gmd:address><gmd:CI_Address><gmd:electronicMailAddress><gco:CharacterString>imanakos@iti.gr</
  gco:CharacterString></gmd:electronicMailAddress></gmd:CI_Address></gmd:address></gmd:CI_Contact></gmd:contactInfo><gmd:role><gmd:CI_RoleCode codeList="
  https://www.isotc211.org/2005/resources/Codelist/gmxCodeLists.xml#CI_RoleCode" codeListValue="pointOfContact">Point of contact</gmd:CI_RoleCode></gmd:role></
  gmd:CI_ResponsibleParty></gmd:contact><gmd:dateStamp><gco:Date>2018-04-05</gco:Date></gmd:dateStamp>
9   <gmd:metadataStandardName><gco:CharacterString>ISO 19115</gco:CharacterString></gmd:metadataStandardName>
10  <gmd:metadataStandardVersion><gco:CharacterString>2003/Cor. 1:2006</gco:CharacterString></gmd:metadataStandardVersion>
11  <gmd:spatialRepresentationInfo>
12    <gmd:MD_Georectified>
13      <gmd:numberOfDimensions><gco:Integer>2</gco:Integer></gmd:numberOfDimensions>
14      <gmd:axisDimensionProperties>
15        <gmd:MD_Dimension>
16          <gmd:dimensionName><gmd:MD_DimensionNameTypeCode codeList="
  https://www.isotc211.org/2005/resources/Codelist/gmxCodeLists.xml#MD_DimensionNameTypeCode" codeListValue="row">Row</gmd:MD_DimensionNameTypeCode></
  
```

Now open the file with GeM+:

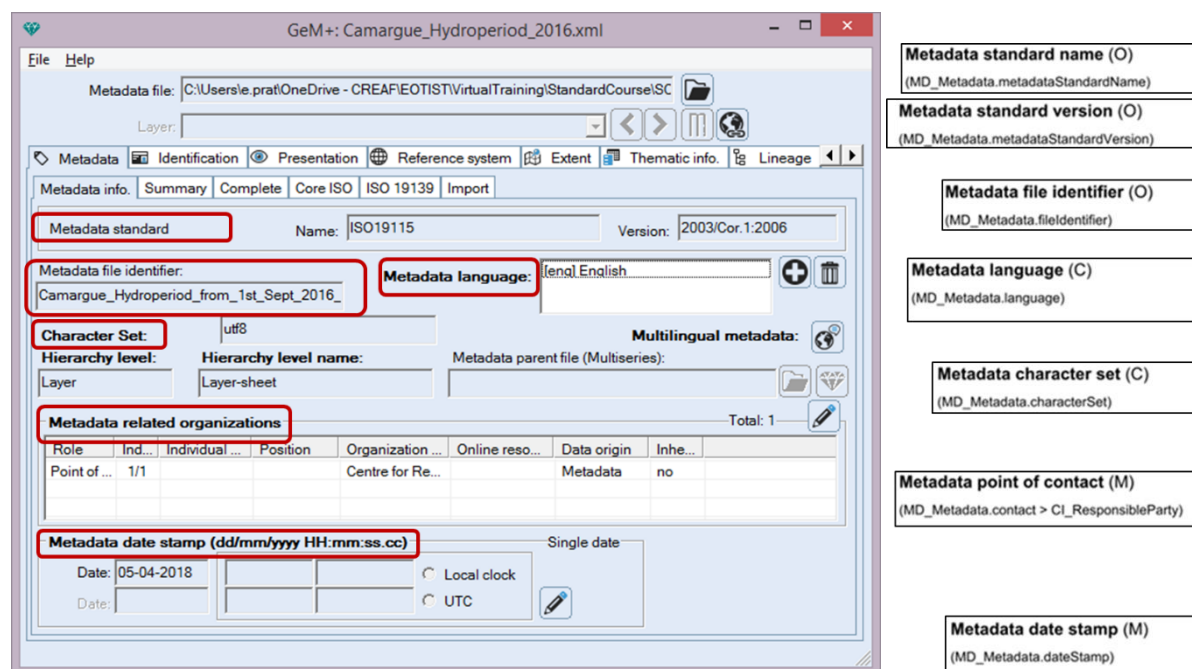


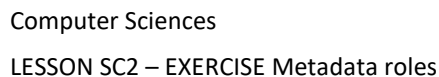
The XML metadata document is automatically displayed in a nicer and more understandable summary view:



## ISO CORE ELEMENTS

Identify the ISO 19115 core elements in the different section tabs:

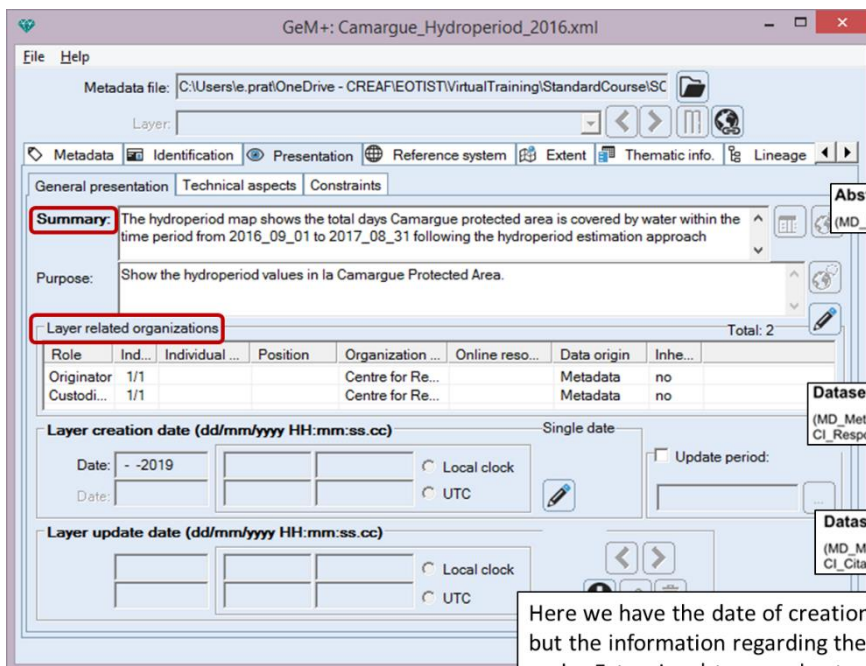




**Dataset language (M)**  
(MD\_Metadata > MD\_DataIdentification.language)

You can select one (or more) layer theme categories from the list and add some keywords related to the base. Both categories and keywords are useful for searching in metadata catalogs.





**Summary:** The hydroperiod map shows the total days Camargue protected area is covered by water within the time period from 2016\_09\_01 to 2017\_08\_31 following the hydroperiod estimation approach

**Purpose:** Show the hydroperiod values in la Camargue Protected Area.

**Layer related organizations** (Total: 2)

Role	Ind...	Individual ...	Position	Organization ...	Online reso...	Data origin	Inhe...
Originator	1/1			Centre for Re...		Metadata	no
Custodi...	1/1			Centre for Re...		Metadata	no

**Layer creation date (dd/mm/yyyy HH:mm:ss.cc)**

Date: -2019

**Layer update date (dd/mm/yyyy HH:mm:ss.cc)**

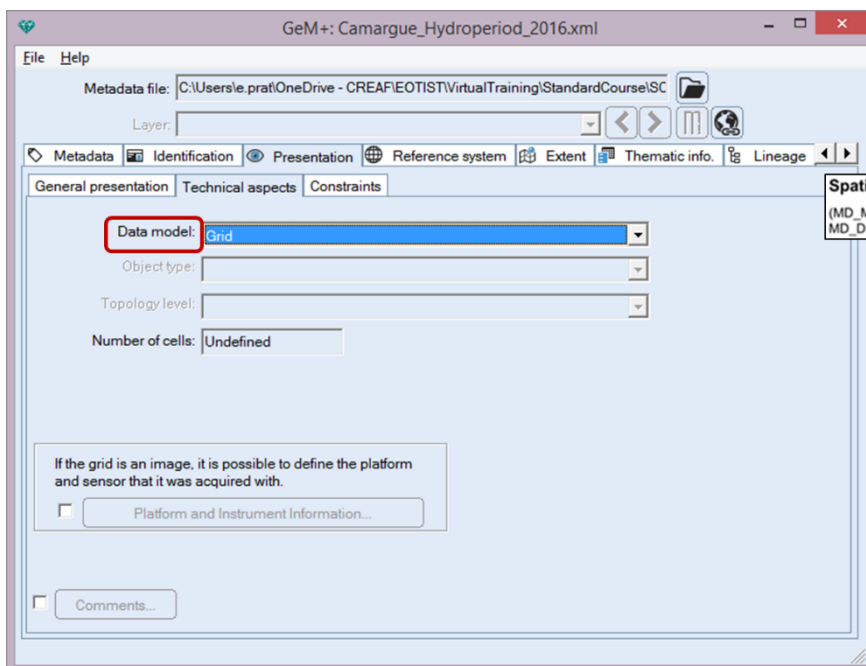
Date:

**Abstract describing the dataset (M)**  
(MD\_Metadata > MD\_DataIdentification.abstract)

**Dataset responsible party (O)**  
(MD\_Metadata > MD\_DataIdentification.pointOfContact > CI\_ResponsibleParty)

**Dataset reference date (M)**  
(MD\_Metadata > MD\_DataIdentification.citation > CI\_Citation.date)

Here we have the date of creation and update of the data, but the information regarding the temporal content is found under Extension | temporal extension



**Data model:** Grid

Object type:

Topology level:

Number of cells: Undefined

If the grid is an image, it is possible to define the platform and sensor that it was acquired with.

☐ Platform and Instrument Information...

☐ Comments...

**Spatial representation type (O)**  
(MD\_Metadata > MD\_DataIdentification.spatialRepresentationType)



GeM+: Camargue\_Hydroperiod\_2016.xml

File Help

Metadata file: C:\Users\le.prat\OneDrive - CREA\FIOTIST\VirtualTraining\StandardCourse\SC

Layer:

Metadata Identification Presentation Reference system Extent Thematic info Lineage

Horizontal reference system

Type: Cartographic

Description

MiraMon: UTM fus 31 hemisferi Nord amb Datum WGS84

User:

XML file:

Units

X: meters (m)

Y: meters (m)

Resolution

X: 10 Units

Y: 10 meters

Equivalent scale: 1:

Quality of the horizontal reference system

There are no quality parameters.

**Reference system (O)**  
(MD\_Metadata > MD\_ReferenceSystem)

**Spatial resolution of the dataset (O)**  
(MD\_Metadata > MD\_DataIdentification.spatialResolution > MD\_Resolution.equivalentScale or MD\_Resolution.distance)

GeM+: Camargue\_Hydroperiod\_2016.xml

File Help

Metadata file: C:\Users\le.prat\OneDrive - CREA\FIOTIST\VirtualTraining\StandardCourse\SC

Layer:

Metadata Identification Presentation Reference system Extent Thematic info Lineage

Horizontal extent Vertical extent Temporal extent

Bounding Box coordinates Description Scene center

Maximum Y: 4844124.048006090 m

Maximum latitude: 43° 44' 2.0399999999999

Minimum Y: 4792130.656195040 m

Minimum latitude: 43° 16' 35.76"

Minimum X: 589467.608872913 m

Maximum X: 656415.597143740 m

Minimum longitude: 4° 6' 39.456"

Maximum longitude: 4° 55' 39.5759999999999

Calculate...

**Geographic location of the dataset (by four coordinates or by geographic identifier) (C)**  
(MD\_Metadata > MD\_DataIdentification.extent > EX\_Extent > EX\_GeographicExtent > EX\_GeographicBoundingBox or EX\_GeographicDescription)





GeM+: Camargue\_Hydroperiod\_2016.xml

File Help

Metadata file: C:\Users\le.prat\OneDrive - CREA\FIOTIST\VirtualTraining\StandardCourse\SC

Layer:

Metadata Identification Presentation Reference system Extent Thematic info. Lineage

Horizontal extent Vertical extent Temporal extent

Bounding Box coordinates Description Scene center

Toponym: Camargue

Description:

**Geographic location of the dataset (by four coordinates or by geographic identifier) (C)**

(MD\_Metadata > MD\_DataIdentification.extent > EX\_Extent > EX\_GeographicExtent > EX\_GeographicBoundingBox or EX\_GeographicDescription)

GeM+: Camargue\_Hydroperiod\_2016.xml

File Help

Metadata file: C:\Users\le.prat\OneDrive - CREA\FIOTIST\VirtualTraining\StandardCourse\SC

Layer:

Metadata Identification Presentation Reference system Extent Thematic info. Lineage

Horizontal extent Vertical extent Temporal extent

Extent and vertical reference system

Vertical reference system

Alcant/Alicante height (EPSG:5782)

Scope

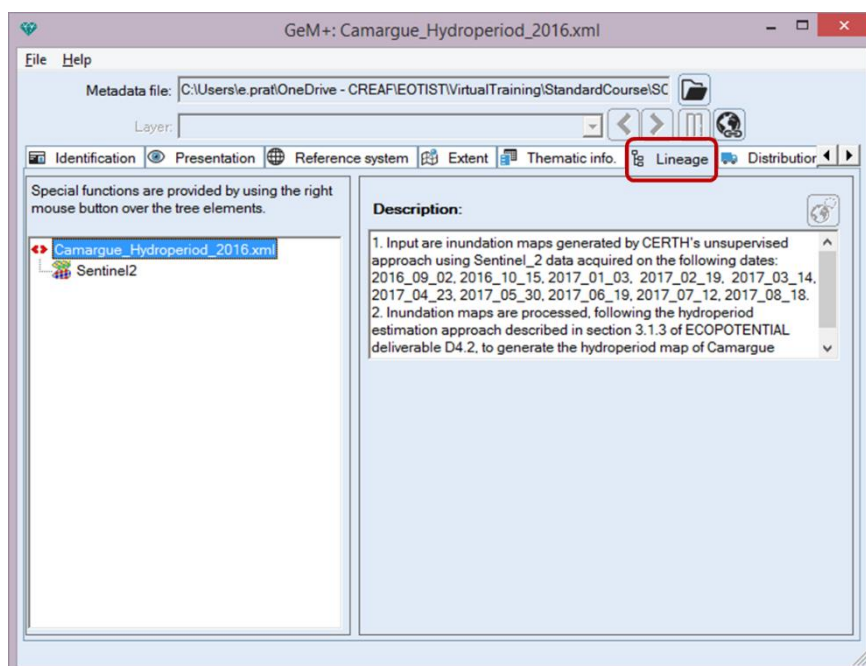
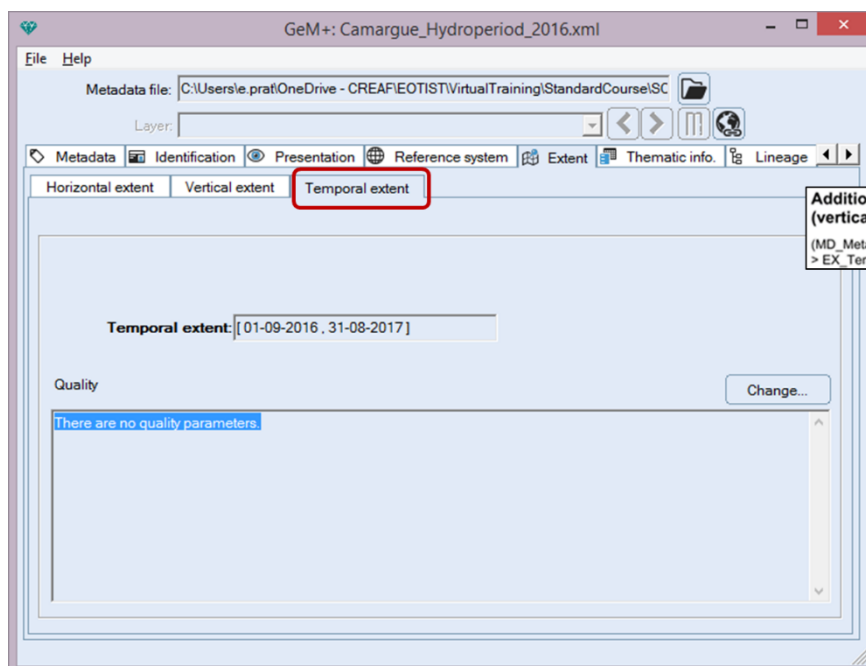
Unknown

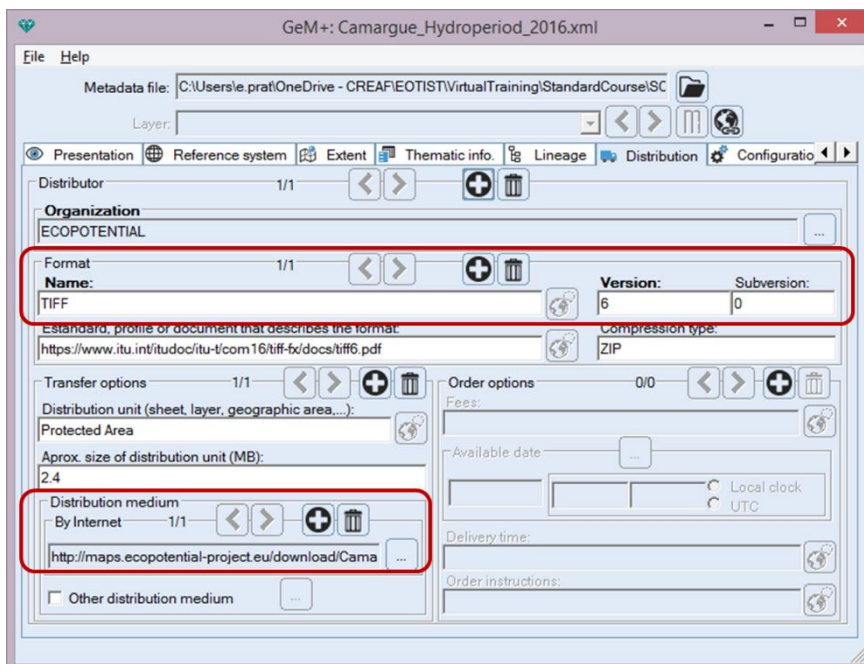
Minimum Z:

Maximum Z:

**Additional extent information for the dataset (vertical and temporal) (O)**

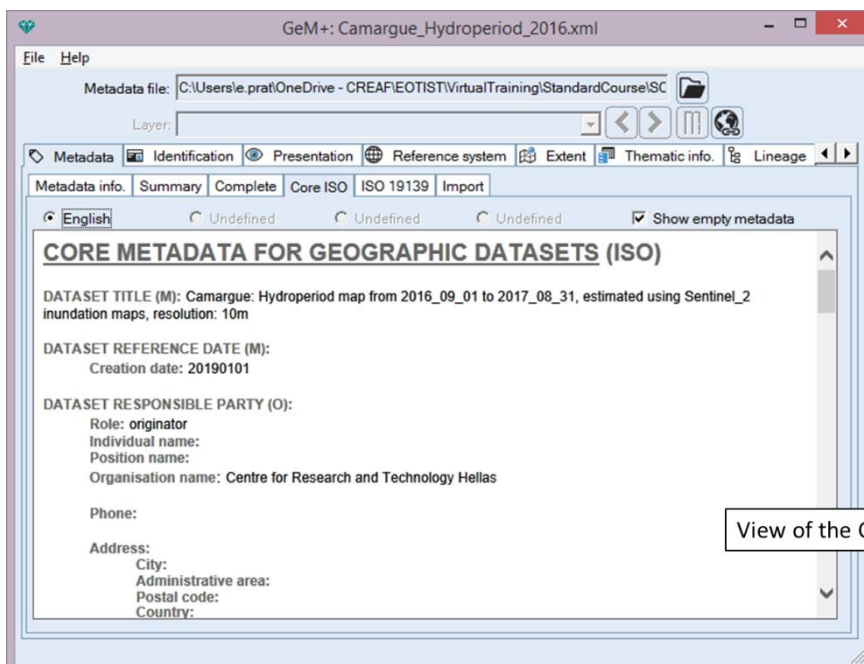
(MD\_Metadata > MD\_DataIdentification.extent > EX\_Extent > EX\_TemporalExtent or EX\_VerticalExtent)





**Distribution format (O)**  
(MD\_Metadata > MD\_Distribution > MD\_Format.name and MD\_Format.version)

**On-line resource (O)**  
(MD\_Metadata > MD\_Distribution > MD\_DigitalTransferOption.onLine > CI\_OnlineResource)



**View of the Core ISO metadata**

Now try it by downloading an XML file from the EEA Geospatial data Catalogue:

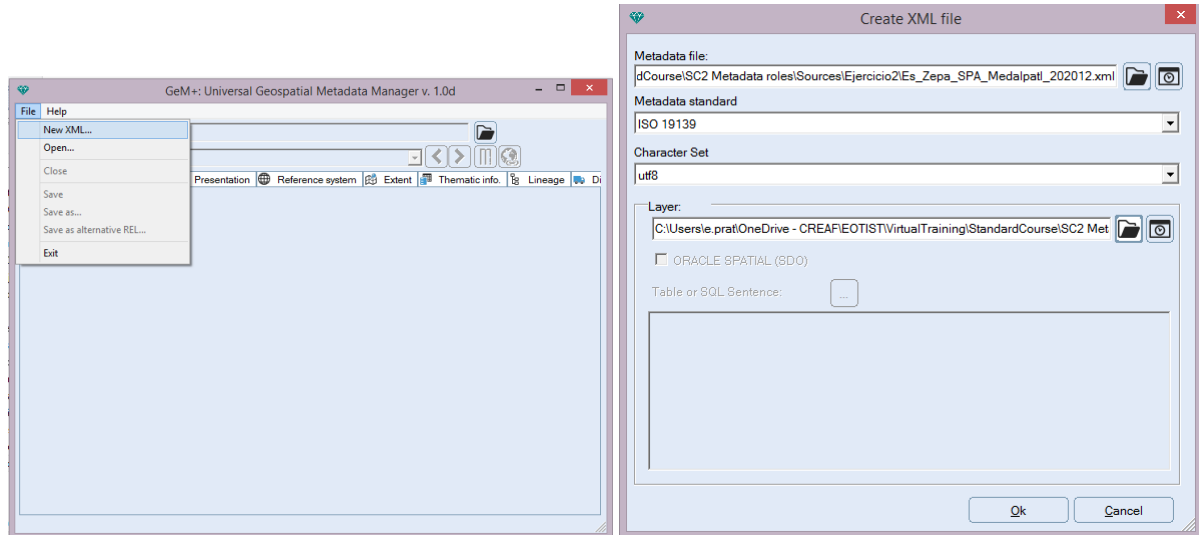
- <https://sdi.eea.europa.eu/catalogue/srv/eng/catalog.search#/home>

Note: The metadata files are available at the bottom of the page. If you click on the *Download metadata* button, the metadata will display in XML format in the web browser. To download the file you should click with the right button and select *Save link as...* from the drop-down menu.

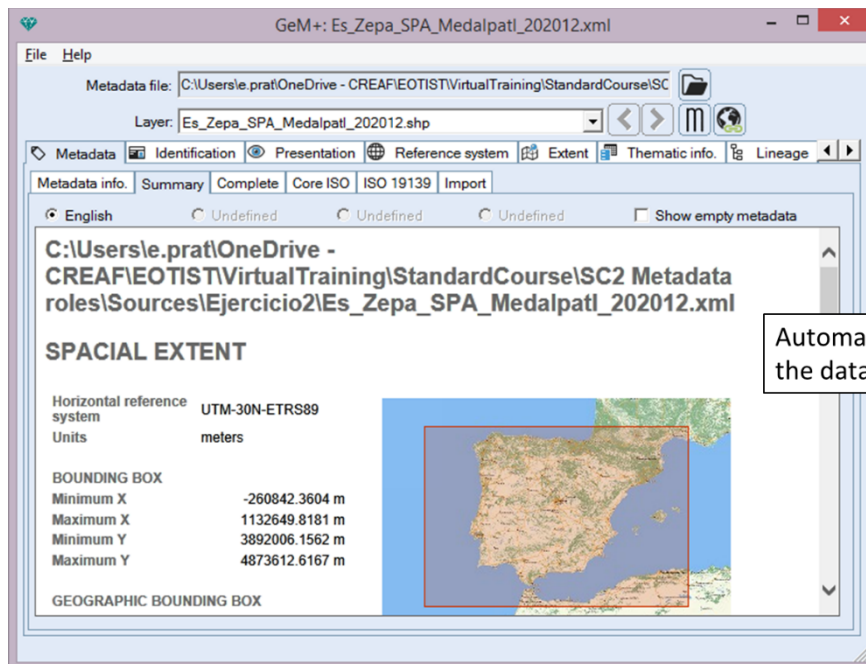


## 2. AUTOMATIC EXTRACTION OF DATA AND METADATA EDITION IN XML

Open the GeM+ and create a New XML for the Es\_Zepa\_SPA\_Medalpatl\_202012.shp layer in the Data folder.



Some of the metadata attributes are automatically filled from the layer itself:



Now let's enrich the metadata:

- Organizations related to metadata
- Layer Title and Alternate Titles
- Base Topic Categories and Keywords
- Summary, purpose, organisms related to the base
- Distribution
- Lineage



• ....

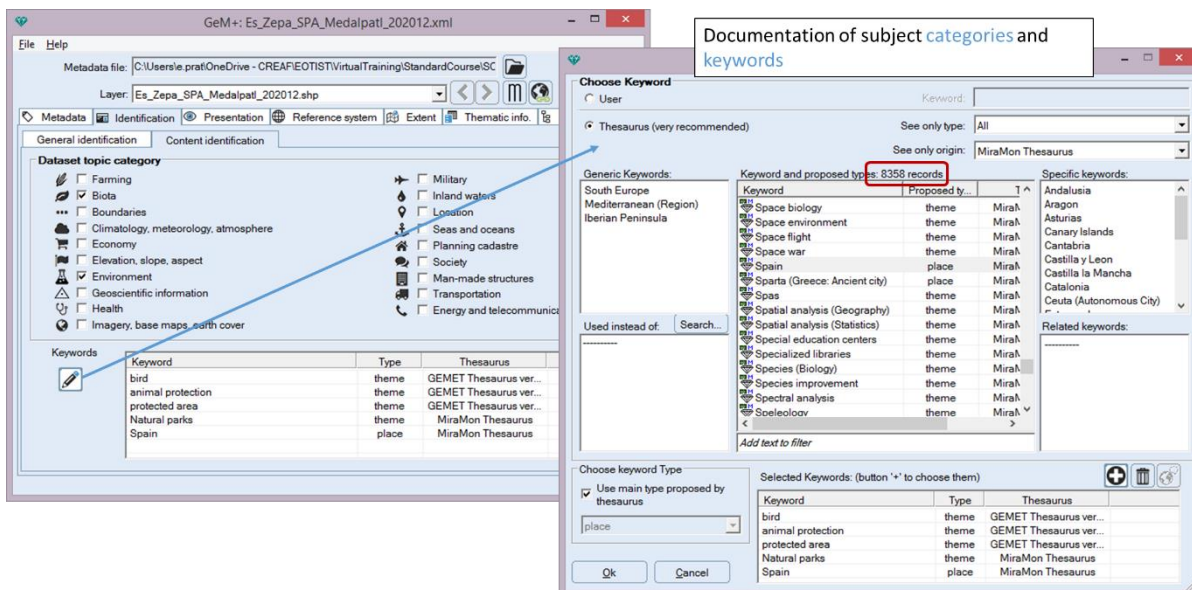
The screenshot displays three overlapping windows from the GeM+ software interface. The main window, titled 'GeM+: Es\_Zepa\_SPA\_Medalpatl\_2021', shows the 'Metadata related organizations' section. A callout box points to a table with the following data:

Role	Ind...	Individual na...	Position	Organization ...	Online res...	Data origin	Inhe...
Proces...	1/1	Ester Prat		CREAF	https://ww...	Metadata	no

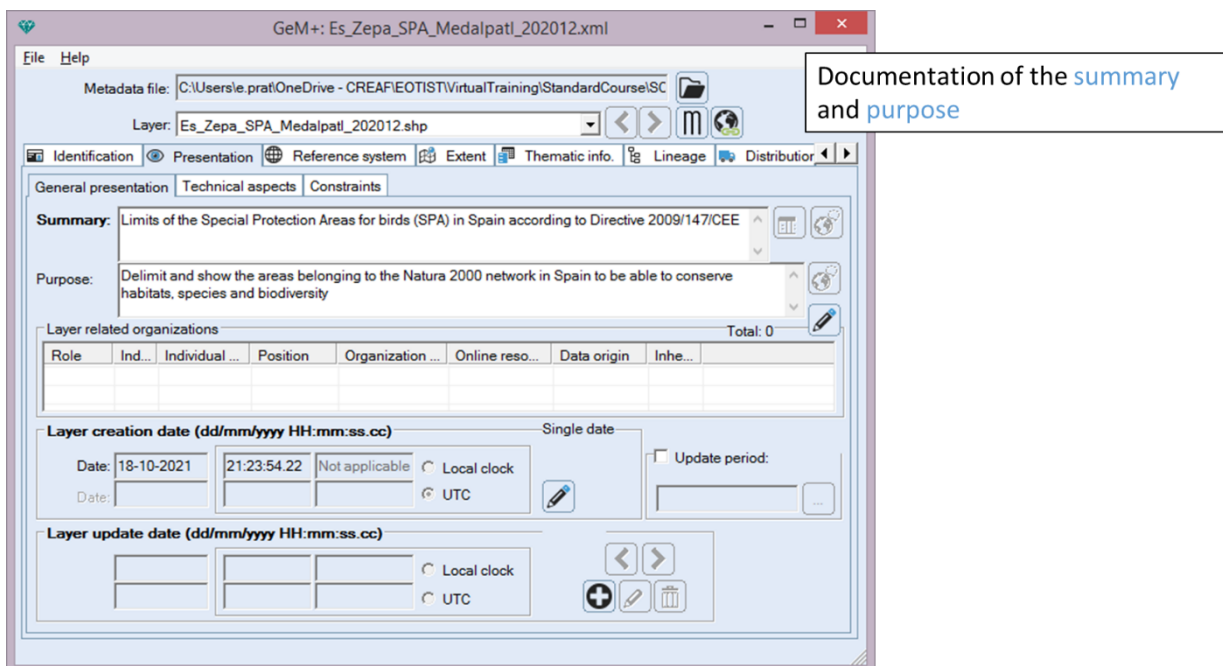
A second callout box points to the 'Organization edition' window, which contains fields for 'Role' (Processor), 'Individual name' (Ester Prat), 'Position', 'Organization name' (CREAF), 'Online resources' (1/1), 'URL address' (https://www.creaf.cat), 'Protocol', 'Description', 'URL function' (Information), 'Phone', 'Fax', 'Address' (City, Postal code, Administrative area, Country), 'Electronic mail address', 'Hours of service', and 'Contact instructions'. A third callout box points to the 'Dataset title' section of the main window, which includes fields for 'Dataset unique identifier' (Code, URI), 'Dataset title' (Special Protection Areas for Birds (SPA) Natura 2000 network), 'Alternative title' (SPA, Spain SPA), and 'Dataset language' ([spa] Spanish; Castilian). A fourth callout box points to the 'Metadata date stamp' section, which includes fields for 'Date' (18-10-2021), 'Time' (21:31:20.90), 'Unknown', 'Local clock', and 'UTC'.

Documentation of organizations related to metadata

Documentation of the titles and the language of the layer



Documentation of subject categories and keywords



Documentation of the summary and purpose





GeM+: Es\_Zepa\_SPA\_Medalpatl\_202012.xml

File Help

Metadata file: C:\Users\le.prat\OneDrive - CREA\FIOTIST\VirtualTraining\StandardCourse\SC

Layer: Es\_Zepa\_SPA\_Medalpatl\_202012.shp

Identification Presentation Reference system Extent Thematic info Lineage Distribution

Special functions are provided by using the right mouse button over the tree elements.

Es\_Zepa\_SPA\_Medalpatl\_202012.xml

- Es\_Zepa\_SPA\_Medalpatl\_202012.dbf
  - Object identifier
  - SPA code
  - SPA name
  - AC
  - hectareas

Table type: DBF Advanced...

Link type: 1 to 1 (thesaurus)

Nr. of records: 604 Nr. fields: 5

Character set: UTF-8 More info.

Name	Description	T...	Si...	D...	Vis...	Si...
OBJECTID	Object identifier	N	10	0	Yes	Yes
SITE_CODE	SPA code	C	20		Yes	Yes
SITE_NAME	SPA name	C	100		Yes	Yes
AC		C	150		Yes	Yes
hectareas		F	19		No	No

Show table contents Open with MiraDades

Database documentation