

# Managing the knowledge created by the users through Geospatial User Feedback system. The NEXTGEOSS use case

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<sup>2</sup> CREAM

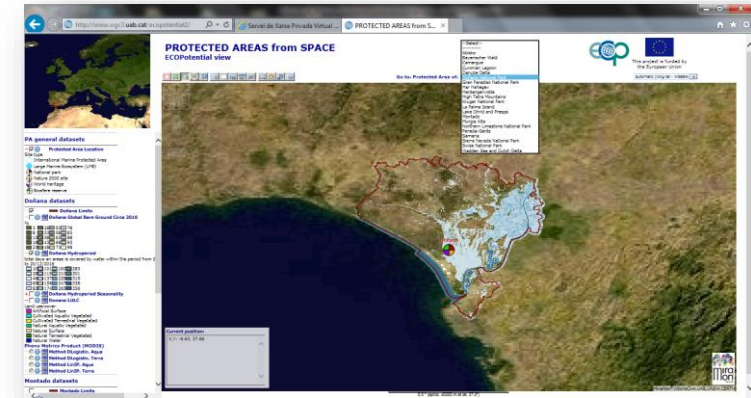


EGU2020 Sharing online. Session ESSI2.1:  
Metadata, Data Models, Semantics, and Collaboration

This project has received funding from the  
European Union's Horizon 2020 research and  
innovation programme under grant agreements  
No 730329 and 641762

# The Contentable of Content

- **The need:**  
web map browser user-created content
- **The context:**  
GUF and NiMMbus
- **The solution:**  
GUF and NiMMbus extensions



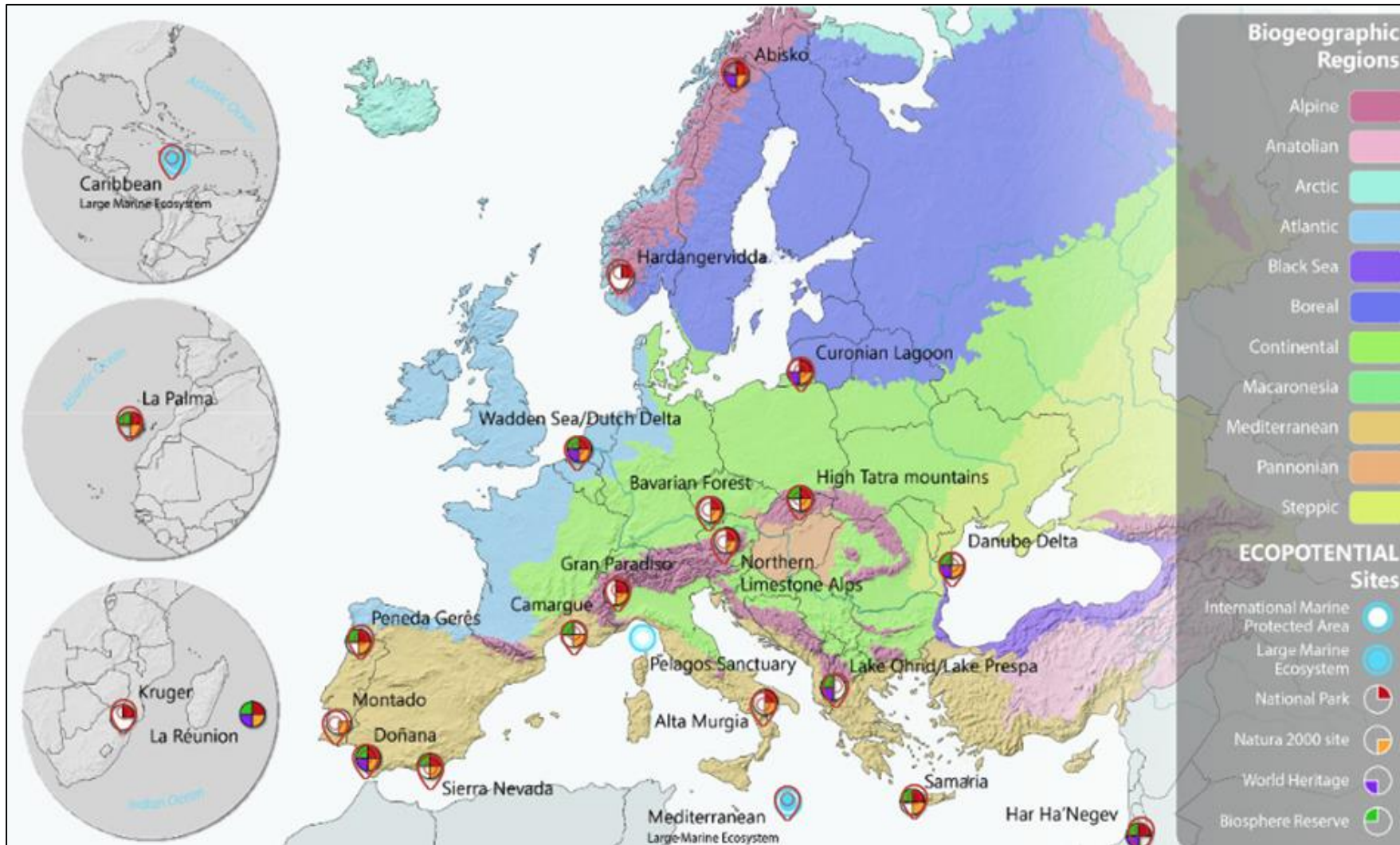
# The need: ECOPOTENTIAL project

- ECOPOTENTIAL was a Europe-funded H2020 project that focuses on serving protected areas. It combines Earth observations (remote sensing and in situ measurements), data analysis, and modeling of ecosystem conditions, to obtain an estimate of current and future ecosystem services.
- ECOPOTENTIAL considered cross-geosphere-biosphere interactions at regional to continental scales, and addresses long-term, large-scale environmental and ecological challenges.
- ECOPOTENTIAL focused its pilot activities and actions on a specific set of internationally recognized Protected Areas in Europe.





# The need: Protected Areas



+22  
protected areas



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# The need: map browser entrance point

A single entrance point Earth Observation imagery and products in ECOPotential

--Select--

Abisko  
Bayerischer Wald  
Camargue  
Curonian Lagoon  
Danube Delta  
Doñana National Park  
Gran Paradiso National Park  
Har HaNegev  
Hardangervidda  
High Tatra Mountains  
Kruger National Park  
La Palma Island  
Lake Ohrid and Prespa  
Montado  
Murgia Alta  
Northern Limestone National Park  
Peneda-Gerês  
Samaria  
Sierra Nevada National Park  
Swiss National Park  
Wadden Sea and Dutch Delta

## Gran Paradiso datasets

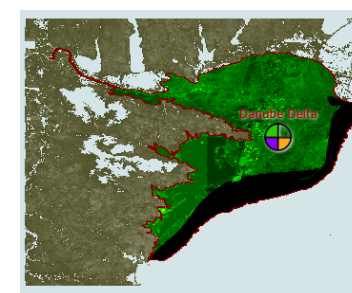
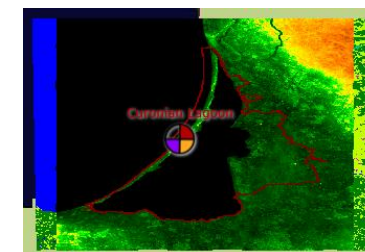
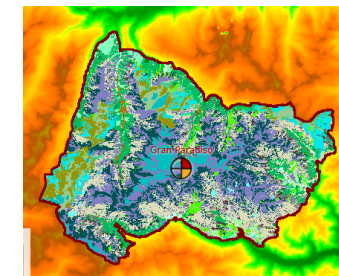
☒ Gran Paradiso Limits  
☒ Gran Paradiso Habitat Map  
☒ Gran Paradiso DTM  
m  
0 1250 2500 3750  
250 1500 2750 4000  
500 1750 3000 4250  
750 2000 3250 4500  
1000 2250 3500 4750  
☒ Gran Paradiso Global Bare Grou  
☒ Gran Paradiso Albedo  
2015  
☒ Gran Paradiso Snow Cover Dur  
01-10-2014  
☒ Gran Paradiso Wet Snow Map  
14-06-2016  
☒ Gran Paradiso Soil Moisture  
18-09-2016  
☒ Gran Paradiso NDVI Landsat  
27-10-2016  
Pheno Metrics Product (MODIS)  
☒ Method DLogistic. Aqua  
☒ Method DLogistic. Terra  
☒ Method LinIP. Aqua  
☒ Method LinIP. Terra  
☐ Gran Paradiso Mask

## Curonian datasets

☒ Curonian Limits  
☒ Curonian Lagoon DTM  
m  
0 75 125 200  
25 100 150  
50 100 175  
☒ Curonian Lagoon LULC  
Land use/cover  
Artificial Surface  
Cultivated Aquatic Vegetated  
Cultivated Terrestrial Vegetated  
Natural Aquatic Vegetated  
Natural Surface  
Natural Terrestrial Vegetated  
Natural Water  
Pheno Metrics Product (MODIS)  
☒ Method DLogistic. Aqua  
2016  
☒ Day of maximum NDVI  
☒ Day of minimum NDVI  
☒ Maximum NDVI  
☒ Minimum NDVI  
☒ Method DLogistic. Terra  
☒ Method LinIP. Aqua  
☒ Method LinIP. Terra  
☐ Curonian Mask

## Danube Delta datasets

☒ Danube Delta Limits  
☒ Danube Delta DTM  
m  
0 50 75 125  
25 50 100  
25 75 100  
☒ Danube Delta Global Bare Grou  
☒ Danube Delta Hydroperiod  
☒ Danube Delta Inundation Map  
01-08-2017  
☒ Danube Delta LULC  
Land use/cover  
Artificial Surface  
Cultivated Aquatic Vegetated  
Cultivated Terrestrial Vegetated  
Natural Aquatic Vegetated  
Natural Surface  
Natural Terrestrial Vegetated  
Natural Water  
☒ Danube Delta NDWI Landsat  
11-04-2017  
Pheno Metrics Product (MODIS)  
☒ Method DLogistic. Aqua  
☒ Method DLogistic. Terra  
☒ Method LinIP. Aqua  
☒ Method LinIP. Terra  
☐ Danube Delta Mask



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# The need: *special* web map browser

Allows the user to define **new RGB** combinations, or **compute new variables**

☒ **Har Ha Negev 36RXV Sentinel 2**

02-12-2016 ▼

<input type="radio"/> Band 1	<input type="radio"/> Band 9
<input type="radio"/> Band 2	<input type="radio"/> Band 11
<input type="radio"/> Band 3	<input type="radio"/> Band 12
<input type="radio"/> Band 4	<input type="radio"/> NDVI
<input type="radio"/> Band 5	<input type="radio"/> True color
<input type="radio"/> Band 6	<input type="radio"/> False color
<input type="radio"/> Band 7	<input type="radio"/> RGB(12,11,2) Geology
<input type="radio"/> Band 8	<input checked="" type="radio"/> Agriculture (11, 8, 2)
<input type="radio"/> Band 8A	

Add layer  
Delete layer

Move layer  
To the top  
Up  
Down  
To the end

Feedback  
Histogram  
RGB combination  
Selection

True color (Red, Green Blue)

False color (NIR, Red, Green)

Agriculture (SWIR, NIR, Blue)

NDWI (NIR, SWIR)



**RGB combination**

Select the three components of the layer "Har Ha Negev 36RXV Sentinel 2"

Component R:  
Band 11 SWIR (1.610µm) ▼

Component G:  
Band 8 NIR (0.842µm) ▼

Component B:  
Band 2 Blue (0.490µm) ▼

The RGB combination will be added as a new style with name  
Agriculture (11, 8, 2)  
to the layer "Har Ha Negev 36RXV Sentinel 2"

OK

Computed from existing layers

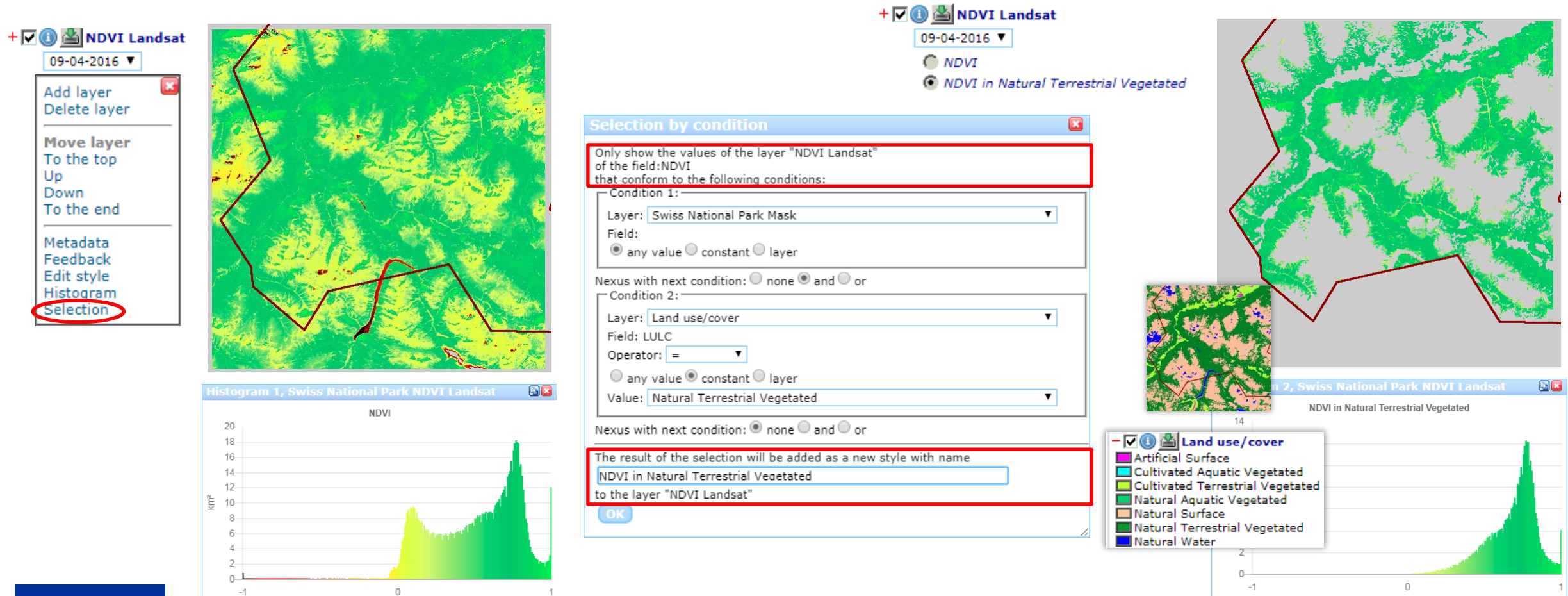
Layer for the expression  
Layer: Har Ha Negev 36RXV Sentinel 2 ▼  
Date: Selected in the layer ▼  
Field: Band 11 ▼

Write in expression

Expression:  
{Band 8} - {Band 11} / ({Band 8} + {Band 11})

# The need: *special* web map browser

Or to create **spatial filters** on one dataset based on others





# The context: user feedback

To help people find exactly the type of data they are looking for, feedback from other *users* can be very helpful and complementary to data producer's description

The screenshot shows a product review interface. On the left, there are three icons: a sad face, a neutral face, and a happy face, each with a corresponding checkbox below it. Below these is a 'Feedback' button with speech bubble icons. The main review section shows a 5.0 star rating (5.0 out of 5 stars) and a 'Write a customer review' button. A 'Most Helpful Customer Reviews' section features a review by 'Matt' dated March 26, 2013, with a 'Verified Purchase' badge. The review text describes a book as a 'Great Resource!' and mentions 'GML'. Below the review is a 'Was this review helpful to you?' section with 'Yes' and 'No' buttons. Annotations with red boxes and arrows point to various elements: 'Stars rating' points to the 5.0 star rating; 'Feedback summaries' points to the star rating breakdown; 'Request for more comments' points to the 'Write a customer review' button; 'Short description' points to the review title 'Great Resource!'; 'Reviewer name' points to 'By Matt'; 'Long description' points to the review text; and 'Feedback about the feedback' points to the 'Was this review helpful to you?' section.

Stars rating

Feedback summaries

Request for more comments

Short description

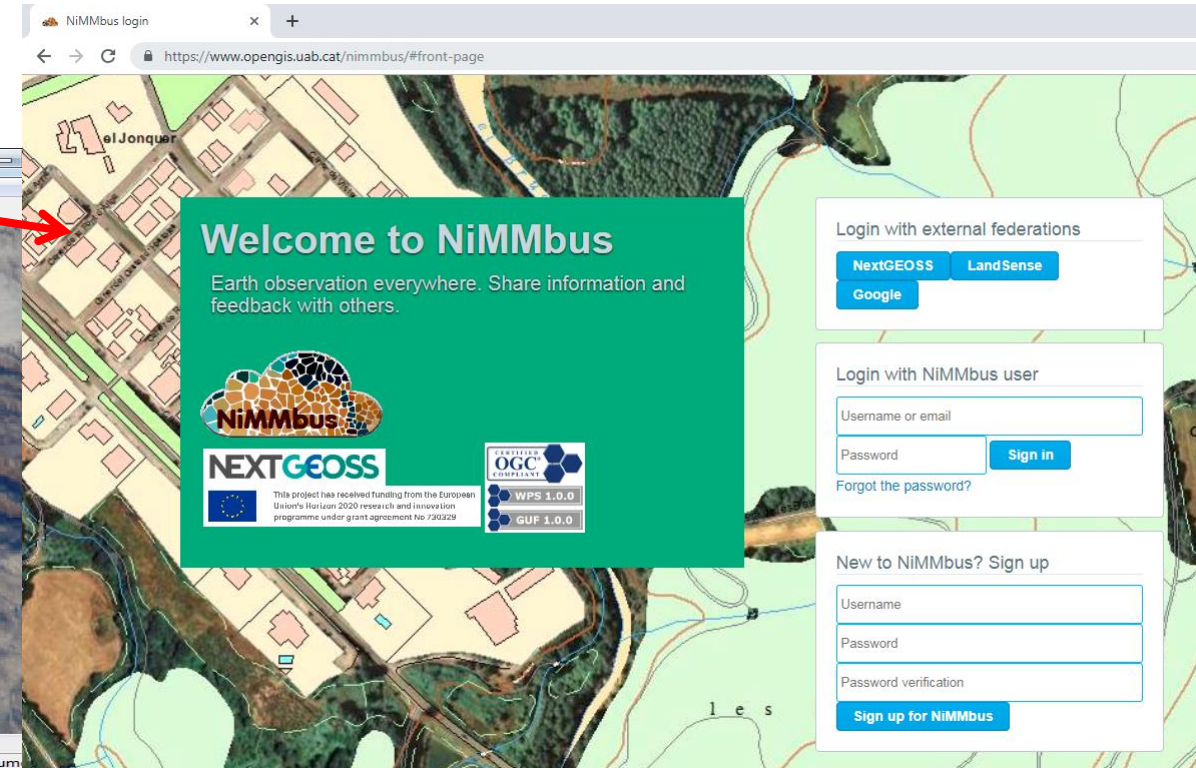
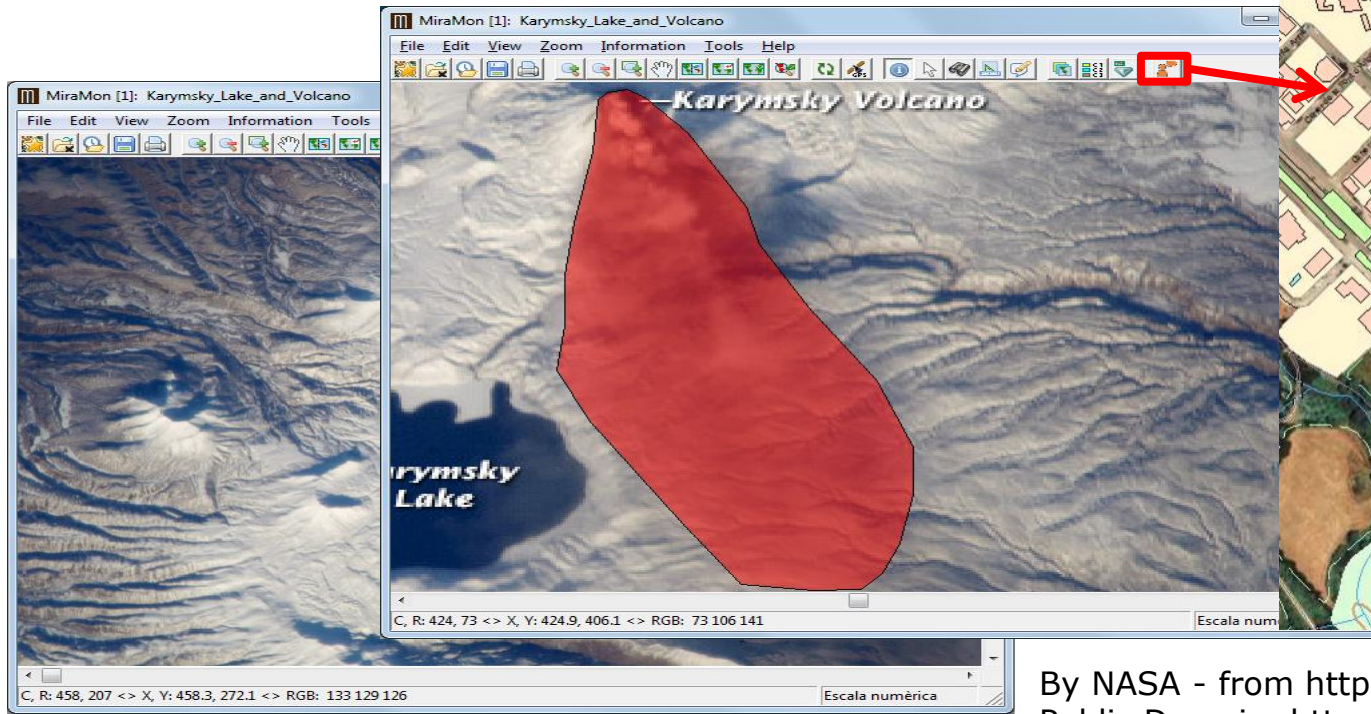
Reviewer name

Long description

Feedback about the feedback

# The context: *geospatial* user feedback

- User A is looking at a particular region of a dataset...
  - ...and sees something wrong...
  - ...and reports it to the portal
- User B can retrieve feedback on the dataset (only if affecting his/her extent (BBOX))



By NASA - from <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=79733>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=32145233>



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# The context: *standard* GUF

- **Conceptual Model:** OGC Geospatial User Feedback (GUF) Standard: Conceptual Model (15-097r1)  
<http://docs.opengeospatial.org/is/15-097r1/15-097r1.html>
- **Format encoding extensions:** OGC Geospatial User Feedback (GUF) Standard: XML encoding extension (15-098r1)  
<http://docs.opengeospatial.org/is/15-098r1/15-098r1.html>
- <http://schemas.opengis.org/guf>

**Open Geospatial Consortium**

Submission Date: 2015-12-10  
Approval Date: 2016-05-25  
Publication Date: 2016-12-22

External identifier of this OGC\* document: <http://www.opengis.net/doc/IS/guf-conceptual/1.0>  
URL for this OGC\* document: <http://docs.opengeospatial.org/is/15-097r1/15-097r1.html>  
Internal reference number of this OGC\* document: 15-097r1  
Version: 1.0  
Category: OGC\* Implementation Standard  
Editor: Joan Masó and Lucy Bastin

OGC Geospatial User Feedback Standard: Conceptual Model

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**Warning**

This document is an OGC Member approved international standard. This document is available on a royalty free, non-discriminatory basis. This formatted version is INFORMATIVE. The normative format is available at:  
<http://docs.opengeospatial.org/is/15-097r1/15-097r1.html>

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Document type: OGC\* Standard  
Document subtype: Conceptual Model  
Document stage: Approved  
Document language: English

**Open Geospatial Consortium**

Submission Date: 2015-12-10  
Approval Date: 2016-05-25  
Publication Date: 2016-12-22

C\* document: <http://www.opengis.net/doc/IS/guf-xml/1.0>  
Internal reference number of this OGC\* document: 15-098r1  
Version: 1.0  
Category: OGC\* Implementation Standard  
Editor: Joan Masó and Lucy Bastin

OGC Geospatial User Feedback Standard: XML Encoding extension

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Open Geospatial Consortium  
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Document type: OGC\* Standard  
Document subtype: XML Encoding extension  
Document stage: Approved  
Document language: English

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Making location count.  
[www.opengeospatial.org](http://www.opengeospatial.org)

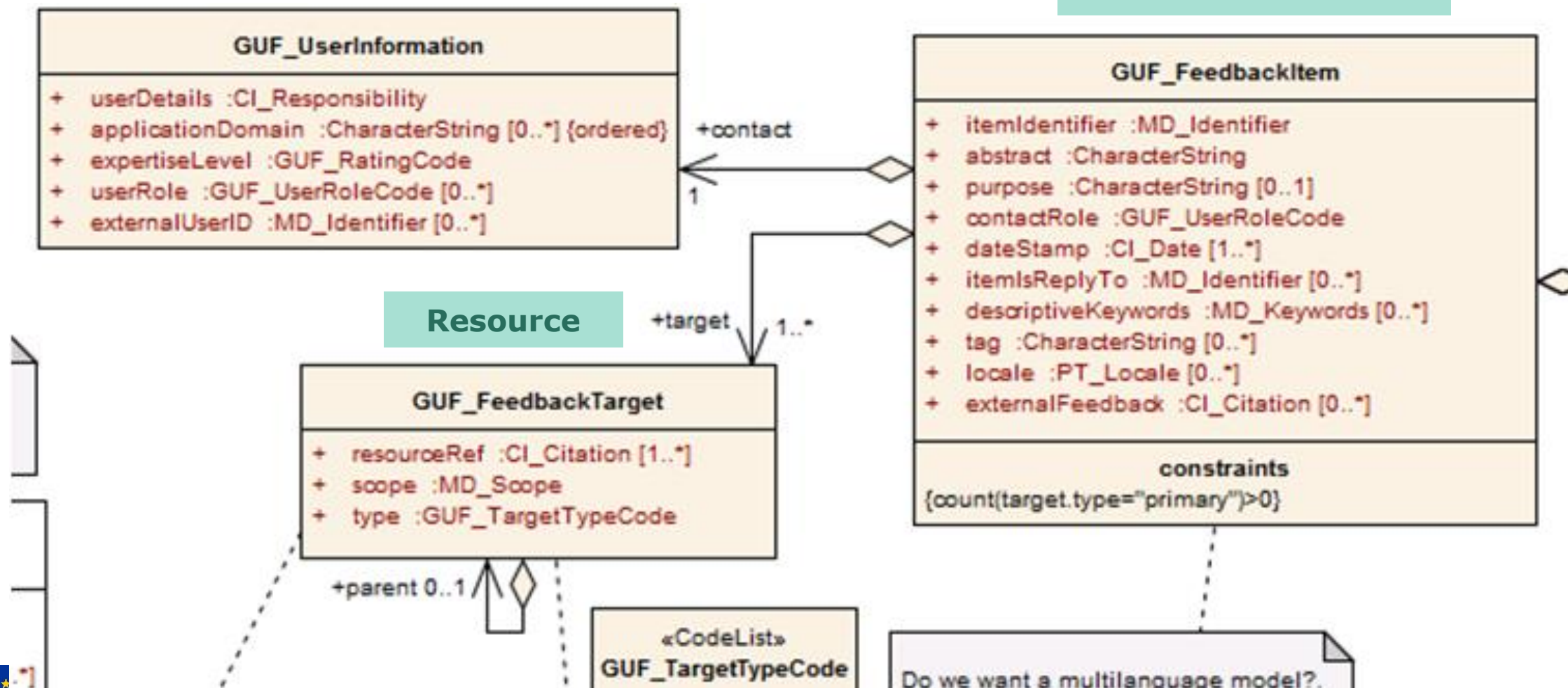




# The context: who? What? Where?

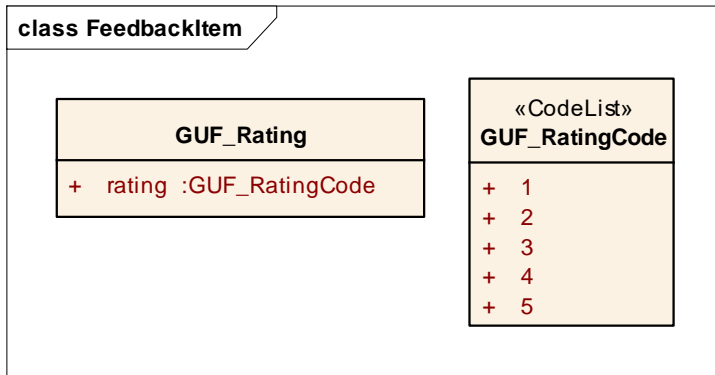
## Person/Organization

## The Feedback Item

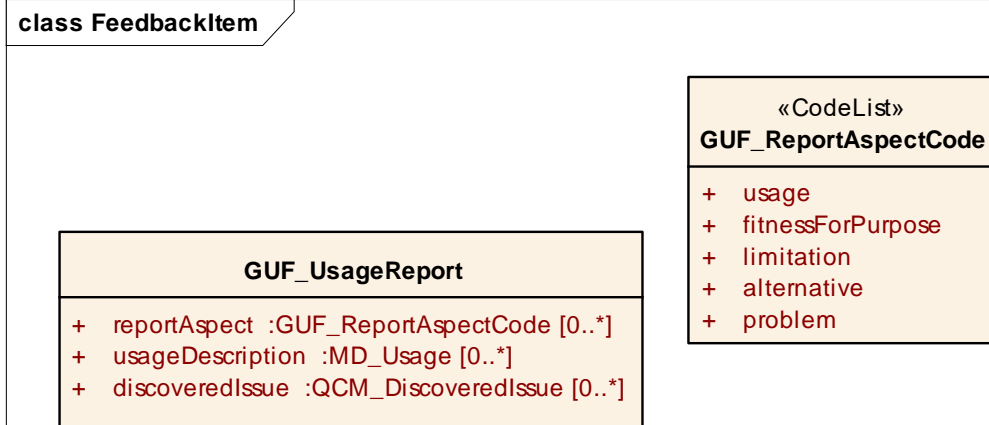


# The context: Feedback item types (1/2)

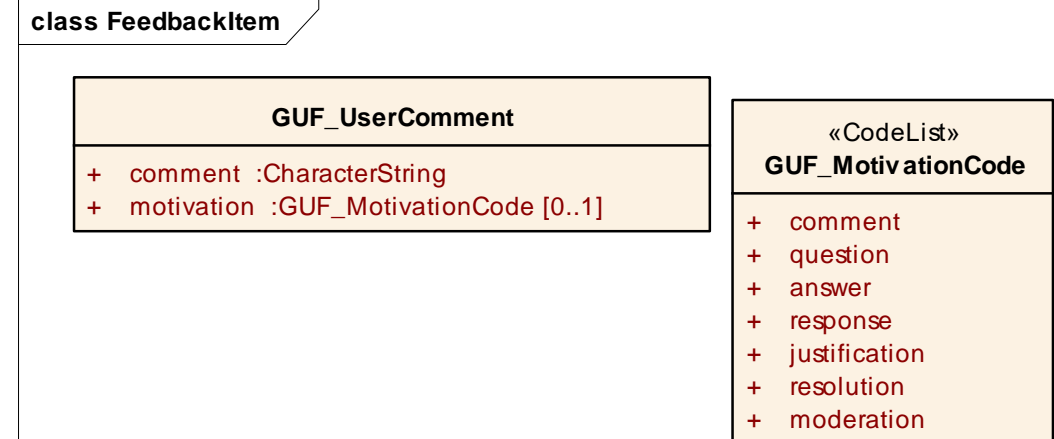
## Rating



## Usage Report



## Comments



This book was exactly what I was looking for! I needed EXAMPLES of GML  
This book helps out greatly! It is worth the hefty price tag and does include

[Comment](#) | Was this review helpful to you?

# The context: Feedback item types (2/2)

class FeedbackItem

CharMe ideas

## Significant Events

### GUF\_SignificantEvent

- + abstract :CharacterString
- + citation :CI\_Citation [0..1]
- + extent :EX\_Extent
- + eventType :GUF\_SignificantEventTypeCode [0..1]

«CodeList»

### GUF\_SignificantEventTypeCode

- + hurricaneNatural
- + volcanicEruptionNatural
- + eINinoNatural
- + droughtNatural
- + stormNatural
- + wildfireNatural
- + floodNatural
- + earthquakeNatural
- + tsunamiNatural
- + ifsEvent
- + systemEvent
- + satelliteAnomaly
- + dropsondeAnomaly
- + aircraftAnomaly
- + buoyAnomaly
- + shipAnomaly
- + landStationAnomaly
- + mobileSensorAnomaly
- + sensorAlarm

## Additional data quality reports

class FeedbackItem

### Data quality: DQ\_DataQuality

## Citations to publications

class FeedbackItem

### Citation and responsible party information::CI\_Citation

- + title :CharacterString
- + alternateTitle :CharacterString [0..\*]
- + date :CI\_Date [0..\*]
- + edition :CharacterString [0..1]
- + editionDate :DateTime [0..1]
- + identifier :MD\_Identifier [0..\*]
- + citedResponsibleParty :CI\_Responsibility [0..\*]
- + presentationForm :CI\_PresentationFormCode [0..\*]
- + series :CI\_Series [0..1]
- + otherCitationDetails :CharacterString [0..\*]
- + ISBN :CharacterString [0..1]
- + ISSN :CharacterString [0..1]
- + onlineResource :CI\_OnlineResource [0..\*]
- + graphic :MD\_BrowseGraphic [0..\*]



### QualityCommon::QCM\_Publication

- + target :CI\_Citation [0..\*]
- + abstract :CharacterString [0..1]
- + motivation :QCM\_CitationMotivationCode [0..1]
- + relatedResource :CI\_Citation [0..\*]
- + scope :DQ\_Scope [0..1]
- + category :QCM\_PublicationCategoryCode





# The context: NiMMbus modular solution

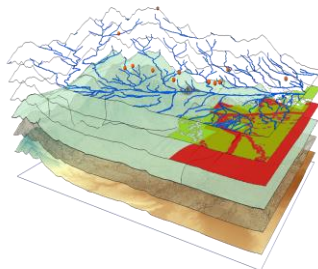
**NEXTGEOSS**  
Contributing to the Vision of GEO



7

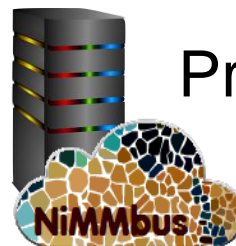
7

Dataset ID



API

Provides storage



API



Informed  
browsing

Data input  
portal

Publication

Modify the characteristics of this publication

Title

For example: Daytime urban heat islands from Landsat ETM+ and Corine land cover data: An application to major cities in Greece

Source edition

Language: English

Edition

Version of the cited resource

Edition date

Date of the edition

Publication identifier

Code

Resource identifier. E.g.: 10.1016/j.solener.2006.06.014

Namespace

Namespace where the identifier is unique. E.g.: https://www.doi.org/

Series which the resource is part of

Series name

Name of the series, or aggregate resource, of which the resource is a part. E.g.: Solar Energy

Series issue identification

Identifier of the issue within the series of which the resource is part. E.g.: Volume 81, Issue 3

Pages in the series

JoanMaso

\*\*\*\*\*

Forgot the password?

Sign in

New to NiMMbus? Sign up:

Username

Password

Password verification

Sign up for NiMMbus

Alaitz Zabala 2019-03-08 09:00

**Title:** Corine Land Cover for heat islands

**NiMMbus Id.:** [ZN735TK4WBF34J356K93N3VD70I7VDZ3PW97T6ADF4589U9](#)

**Contact role:** Research end user

**Date (creation):** 2019-03-08

**Date (revision):** 2019-03-08

**Comment:** This dataset has been successfully applied, only small shortcomings were discovered with its publication to obtain more details.

**Comment motivation:** Comment

**Rating:** 4/5

**Publication:** Daytime urban heat islands from Landsat ETM and Corine land cover data: An application

(First publication, 2007-03-01), *Solar Energy*, Volume 81, Issue 3, pp.358-368, paper internal id: 34

**Online resource:** [Paper information \(and possible download\)](#).

**DOI:** [10.1016/j.solener.2006.06.014](#).

**NiMMbus Id.:** [05ISZ3266234POV00005ERW4ZFNI63LU1B0089X14K85AC0](#)

**Abstract:** Satellite images in the thermal infrared can be used for assessing the thermal urban environment. In this study, the thermal environment of major cities in Greece (Athens, Heraklion) is examined using satellite images provided by the Landsat Enhanced Thematic Mapper (ETM+). The study area is divided into 7 satellite images corresponding to the daytime and warm period when the surface urban heat island (SUHI) is most pronounced.

[Click to show/hide more information](#)

**Target resource (Primary):** Corine Land Cover 2012

**Identifier:** <http://sdi.eea.europa.eu/catalogue/c90fd0c1-ebdf-4df9-9216-4592ed843644>

**NiMMbus Id.:** [66Z1BK7VL3E15L6XX047Z091UJHT710798T3C4B69A3BQZ2](#)

★★★★★ (1)  
5.0 out of 5 stars

5 star 1  
4 star 0  
3 star 0  
2 star 0  
1 star 0

[See the customer review](#)

**Most Helpful Customer Reviews**

★★★★★ **Great Resource!** March 26, 2013  
By Matt

Share your thoughts with other customers  
[Write a customer review](#)

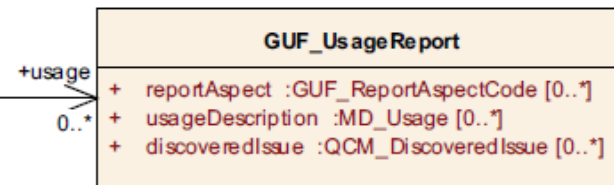


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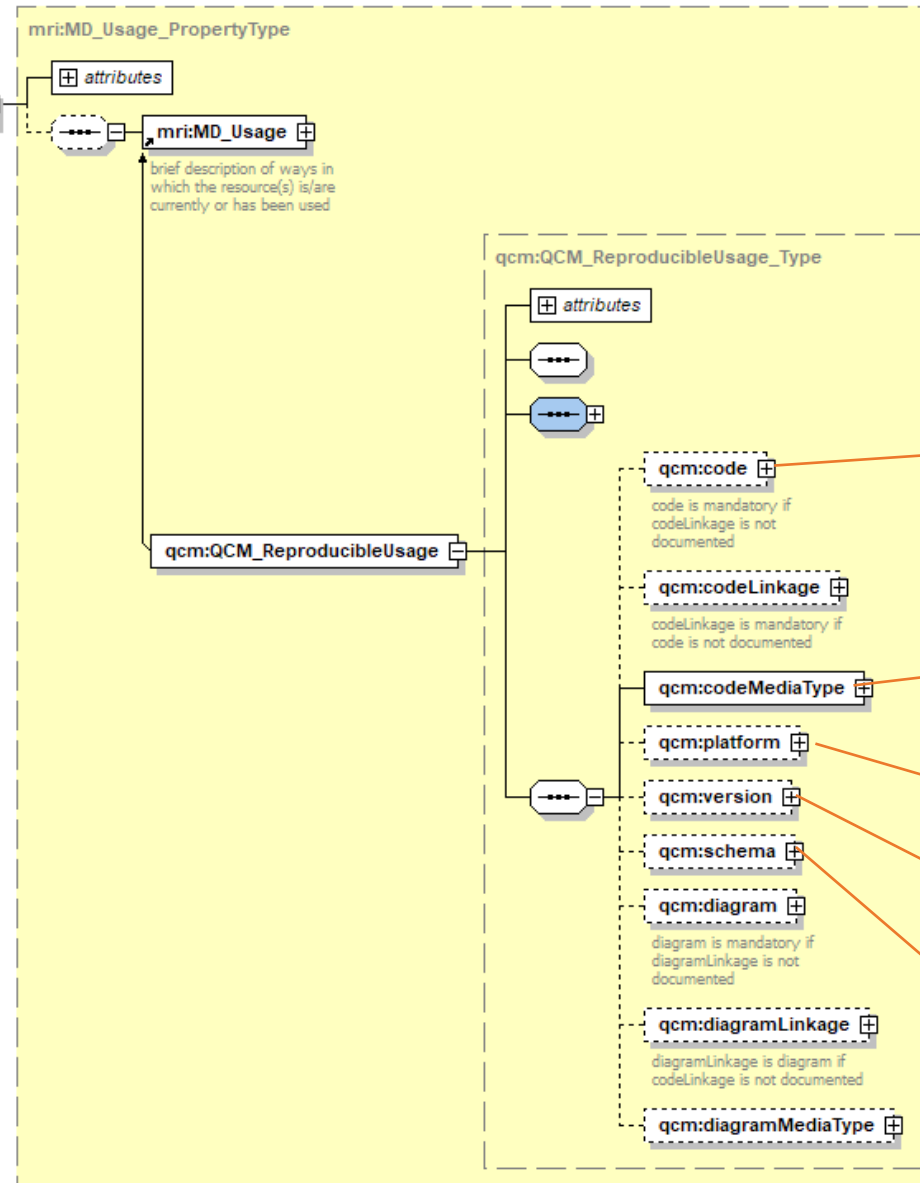
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# The solution: GUF / NiMMbus extension



**guf:usageDescription**  
For supplementary information on the exact procedure carried out.



## EXAMPLE

JSON code

application/json

<https://github.com/joanma747/MiraMonMapBrowser>

6.0

config-schema.json#/definitions/estil

## EXAMPLE

Cit. title: Sentinel L2A

Cit. code: AbiskoSentinel2Level2a

Cit. code space: <http://maps.ecopotential-project.eu/>

Target type: primary

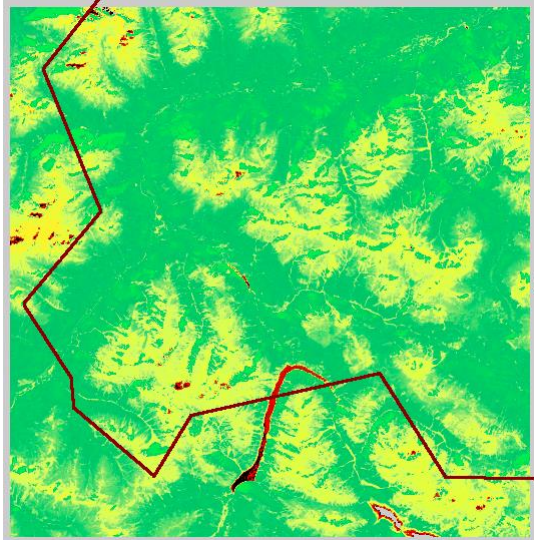
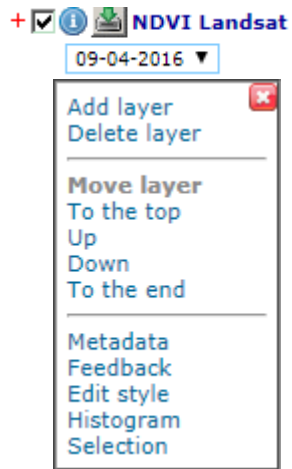
# The solution: GUF / NiMMbus extension

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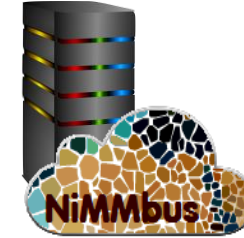
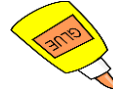


2

2

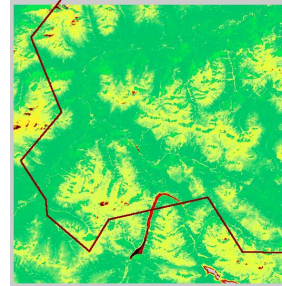
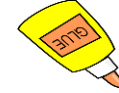


Dataset ID



API

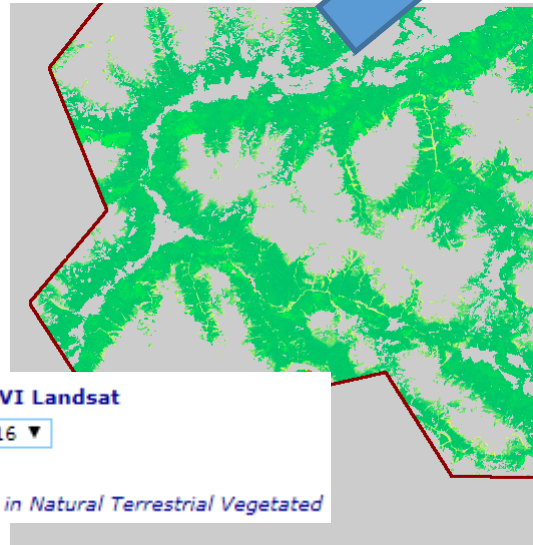
Dataset ID



API

Others user:  
explore and  
reuse

Usage  
description  
and publish



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# Questions?

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**joan.maso@uab.cat**  
**xavier.pons@uab.cat**



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# Any feedback?

**alaitz.zabala@uab.cat**  
**joan.maso@uab.cat**  
**xavier.pons@uab.cat**



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