

Quality and user feedback metadata: theoretical aspects and a practical implementation in the MiraMon Metadata Editor

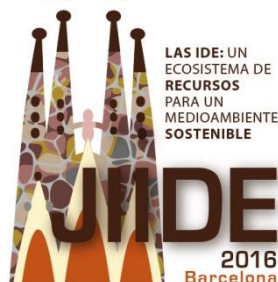
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Overview

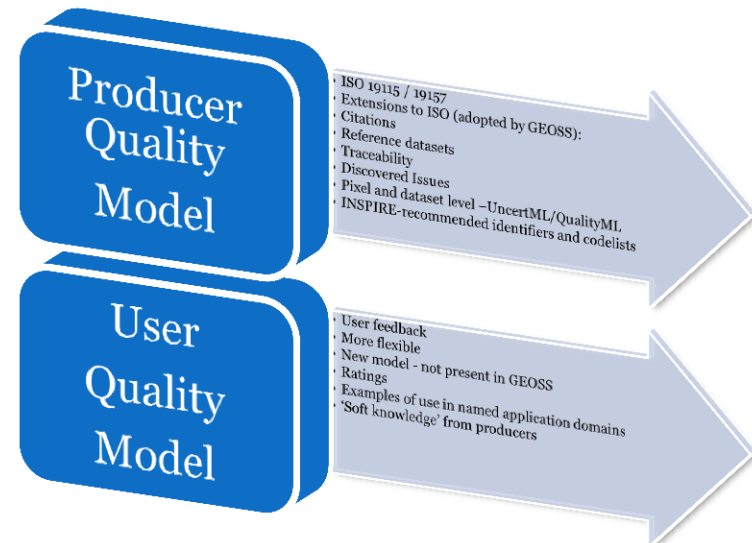
- Background
- Geospatial User Feedback (GUF)
 - Conceptual model
 - XML implementation
- GUF service
- GUF client
- Example use cases
- Conclusions



Background




- Final aim: help to determine fitness-for-purpose

- 2010:  GEOVIQUA
 - Metadata about data quality
 - Extension of ISO standards
 - Producer quality model
 - User quality model
 - Implementations





Background

- **Producer Quality Model**
 - Mainly included in reviewed versions of ISO 19115-1, 19115-3 and 19157
- **User Quality model**
 - Evolved in OGC GUF.SWG from
 -  GEOVIQUA
 -   University of Reading
 - OGC Geospatial User Feedback Standards (03/2016)



Background

User feedback is a form of **crowd-sourcing** that offers the possibility to the consumer to provide extra information about items and complement the producer's description

The screenshot shows a product review interface with several key components highlighted by red arrows and labels:

- Stars rating:** Points to the 5.0 out of 5 stars rating at the top left.
- Feedback summaries:** Points to the star rating breakdown table (5 star: 1, 4 star: 0, 3 star: 0, 2 star: 0, 1 star: 0).
- Request for more comments:** Points to the "Write a customer review" button.
- Short description:** Points to the "Most Helpful Customer Reviews" section header.
- Reviewer name:** Points to the reviewer's name "By Matt".
- Long description:** Points to the main body of the review text.
- Feedback about the feedback:** Points to the "Was this review helpful to you?" section with "Yes" and "No" buttons.
- It can also contain other kind of annotations:** Points to the bottom "Write a customer review" button.

Additional visible elements include a link to "See the customer review", the review date "March 26, 2013", and the format "Format: Paperback | Verified Purchase".



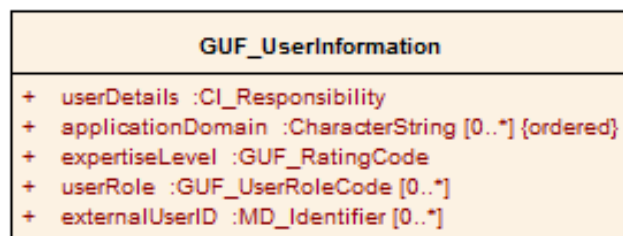
Geospatial User Feedback Standard

- Conceptual model (OGC 15-097):
Metadata is organized in **4 UML modules**:
 - QCM: Quality Common Metadata
 - GUF: Geospatial User Feedback
 - UFC: User Feedback Collection
 - UFS: User Feedback Summary
- The standard does NOT define:
 - Service to store feedback items that could be queried
 - UF collection would be the service answer
 - Client to show and produce feedback items

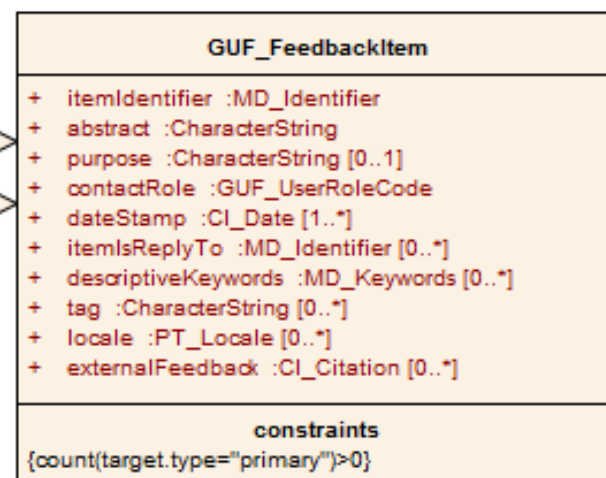


GUF: Geospatial User Feedback

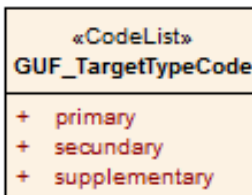
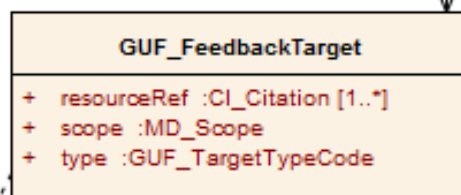
Person/Organization



The Feedback Item



Resource



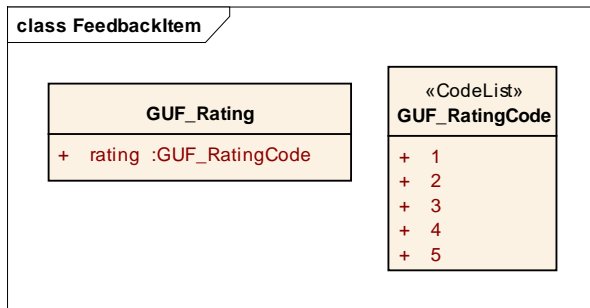
Do we want a multilanguage model?.

... cited providing a full CI_Citation (or
... ation) or by the MD_Identifier inside the
Both GeoViQua an CharMe model profiles

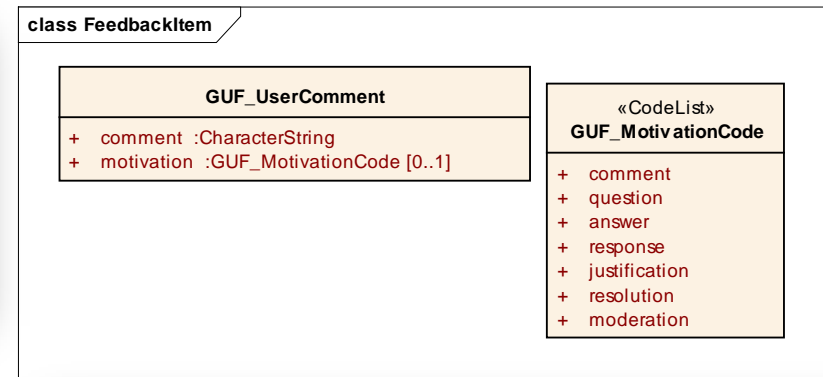


GUF: Geospatial User Feedback

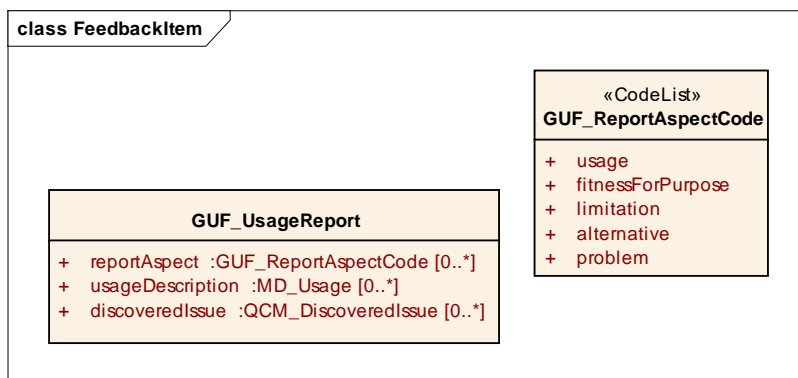
Rating



Comments



Usage Report



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

Comment | Was this review helpful to you?



GUF and QCM: Quality Common M.

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
+ elNinoNatural
+ 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
```



Geospatial User Feedback Standard

- XML Encoding Extension (OGC 15-098):

- Feedback item

```

<guf:userComment>
  <guf:GUF_UserComment>
    <guf:comment>
      <gco:CharacterString>Surprisingly, there are no directly comparable sets of global land-cover data for two different
      dates. For instance, the Global Land Cover for the year 2000 (GLC 2000) based on SPOT VEGETATION (http://www.gvm.jrc.it/glc2000) is not directly comparal
      with the International Geosphere-Biosphere Programme (IGBP) Land Cover (1992-1993, http://edcdaac.usgs.gov/glc/globdoc2_0.asp) based on the Nation
      and Atmospheric Administration Advanced Very High Resolution Radiometer (NOAA-AVHRR). The difficulties arise from the use of different sensors, differer
      classification systems (including different definitions of forest) and different classification methods. </gco:CharacterString>
    </guf:comment>
  </guf:GUF_UserComment>
</guf:userComment>
<guf:target>
  <guf:GUF_FeedbackTarget>
    <guf:resourceRef xlink:href="http://www.gvm.jrc.it/glc2000">
      <cit:Citation>
        <cit:title></cit:title>
        <cit:identifier>
          <mcc:MD_Identifier>
            <mcc:code>
              <gco:CharacterString>GLC2000</gco:CharacterString>
            </mcc:code>
          </mcc:MD_Identifier>
        </cit:identifier>
      </cit:Citation>
    </guf:resourceRef>
  </guf:GUF_FeedbackTarget>
</guf:target>
  
```

The Feedback Item

About a Resource

- Feedback collection

- Feedback summary

Customer Reviews

★★★★★ 34
4.7 out of 5 stars

| | |
|--------|-----|
| 5 star | 76% |
| 4 star | 21% |
| 3 star | 3% |
| 2 star | 0% |
| 1 star | 0% |

See all 34 customer reviews



Rick Steves Pocket Barcelona

by Rick Steves (Author)

★★★★★ 34 customer reviews

#1 Best Seller in Barcelona Travel Guides



GUF Service

- Not described by the standard
- Catalogue Service (CSW) based on ebRIM
- Operations
 - Capabilities
 - Query (to get the feedback collection)
 - GetSummary (to get the feedback summary)
 - Transaction (to insert new feedback items)
- CSW can be used to federate of services



GUF Service: NiMMbus



- Web Processing Service (WPS)
 - MiraMon NiMMbus implementation
- Want
 - To be a service to store geospatial data, feedback information and to execute distributed processes
 - To allow a perfect integration
 - With other MiraMon RS&GIS software components
 - With resources offered by SDIs and open data paradigms
- Hybrid cloud (public service, private resources) open to everyone
 - Registration required → User profile
- Offers
 - Tools to generate new geospatial data: can be published and shared
 - Tools to see, summarize and create feedback metadata related to any the geospatial data (wherever stored)



GUF Client

- MiraMon Metadata Manager (GeMM) is a file based metadata tool
- Implementation considerations:
 - feedback in local files? → it will be limited to our own feedback
 - Assuming there are copies of the same dataset that have the same *id* it is possible to store feedback of many users in a service
- A new tab is added to GeMM allowing:
 - To see previous feedback items of other users
 - To submit new feedback to the server
- Moreover, feedback can be about data and metadata:
 - Integration to metadata items
 - Integration to data visualization in MiraMon



Use case scenario 1

- A user is looking at the metadata and sees the abstract is not populated in English

The image shows two overlapping windows. The background window is the 'GeMM: MiraMon Metadata and Database Relationships Manager v. 8.0i'. It displays metadata for a file named 'C:\docs\Taller\Q_PQ_T\imatge_multibanda\11-04-97-1.img'. The 'Summary' tab is active, showing a 'Summary' field with text in Catalan: 'Composició en fals color (24 bits) a partir d'imatges Thematic de l'11 d'abril de 1997 sobre una zona del Segrià'. The 'Language' dropdown is set to 'English'. The foreground window is a web browser showing the 'GeoViqua User Feedback' form. The form has tabs for 'User feedback', 'Target', 'User info', and 'Advanced'. The 'User feedback' tab is active, showing fields for 'Subject', 'Rating score', 'Rating justification', 'User Role' (set to 'Basic User'), and 'Comment'. The 'Comment' field is highlighted with a blue border.



Use case scenario 2

- A user is looking at a particular region of a dataset and sees something wrong
 - user sees the feedback that only affects the same BBOX

The screenshot displays the MiraMon Metadata Editor interface. On the left, a satellite image of Karymsky Lake and Volcano is shown. A red polygon highlights a specific region of the lake. The status bar at the bottom of the image window indicates the bounding box (BBOX) coordinates: C, R: 424, 73 <> X, Y: 424.9, 406.1 <> RGB: 73 106 141.

On the right, a web browser window shows the feedback form titled "User feedback". The form includes fields for "Subject", "Rating score" (with a star rating), "Rating justification", "User Role" (set to "Basic User"), "Comment", and "DomainURN". The URL in the browser address bar is https://geoviqua.stcorp.nl/submit_feedback.html?target_code=EIC04_CORINE_BIOTOPES&target_codespace=http://api.eurogeos-broker.eu.



Conclusions

- There is a need for complementing producer information with geospatial user feedback
- There is an approved standard for geospatial user feedback (conceptual model & XML implementation)
- An implementation of a GUF service+client on the cloud is possible
- In NextGEOSS H2020 project, a GUF implementation will be completely integrated in the GEOSS Common Infrastructure



Conclusions

- NextGEOSS: Nest Generation GEOSS for Bussines and Innovation



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