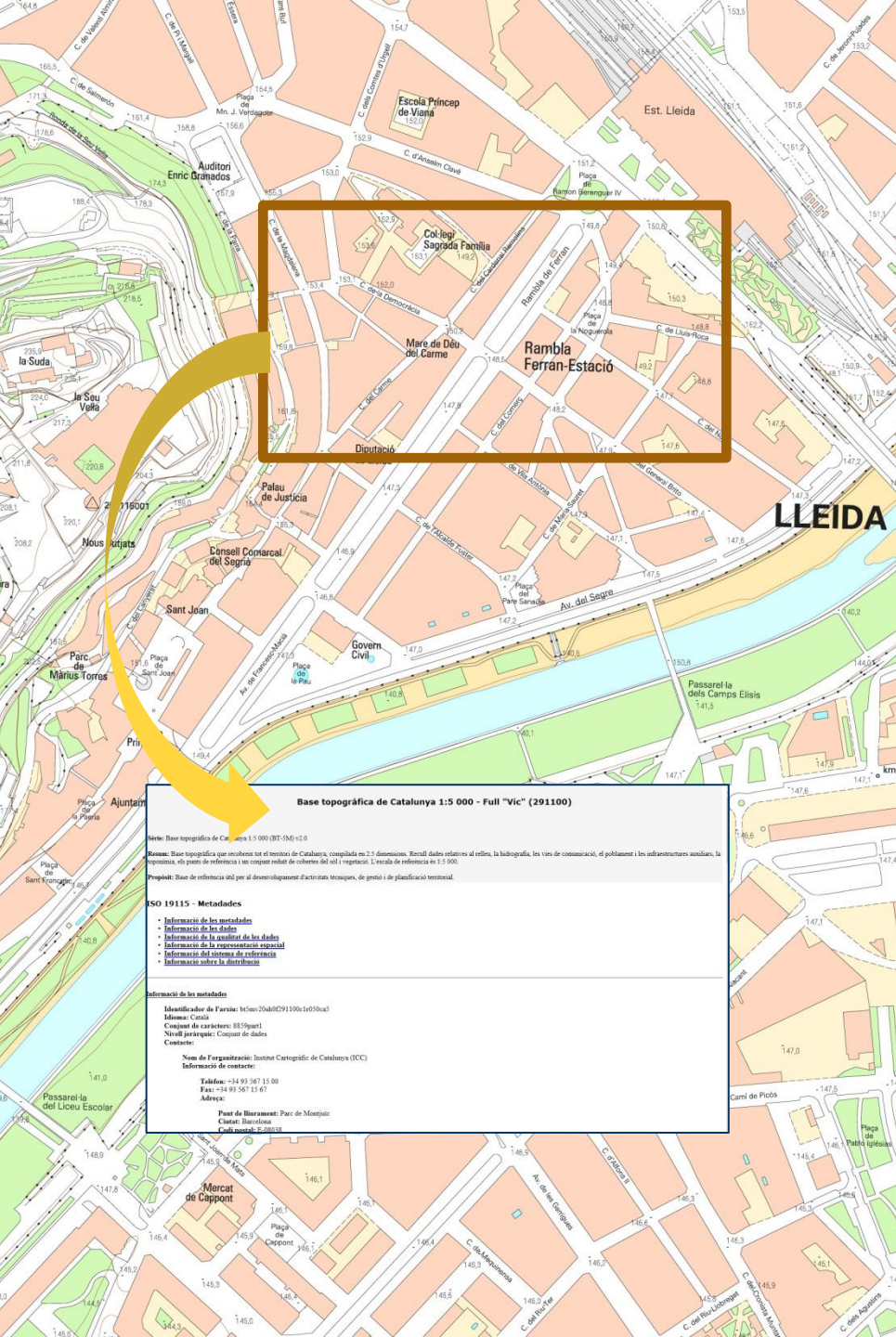


# Metadata for (topographic) data on-demand

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International Workshop on  
Spatial Data and Map Quality  
Valletta (Malta), 20th – 21st January 2015



# This presentation

- **Context**
- **Metadata organization**
- **Metadata for an on-demand dataset**
- **Conclusions**



# Context

## Our Organization

### Institut Cartogràfic i Geològic de Catalunya (ICGC)

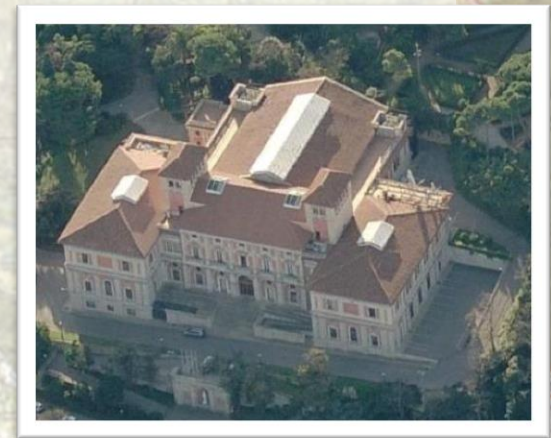
- **Catalan Geoinformation Agency** and reference public service for the application of geo-scientific knowledge (Government of Catalonia)
- **Aim:** Deliver to users valued geographic and geological information and services.
- Creation: 2014
- Merger of 2 Orgs.: ICC (1982) + IGC (2005)
- Location: Barcelona

### Institutional and commercial activities

### International background

### Multidisciplinary knowledge fields

- Geodesy, Geomatics, Cartography, SDI, Geology, Geophysics



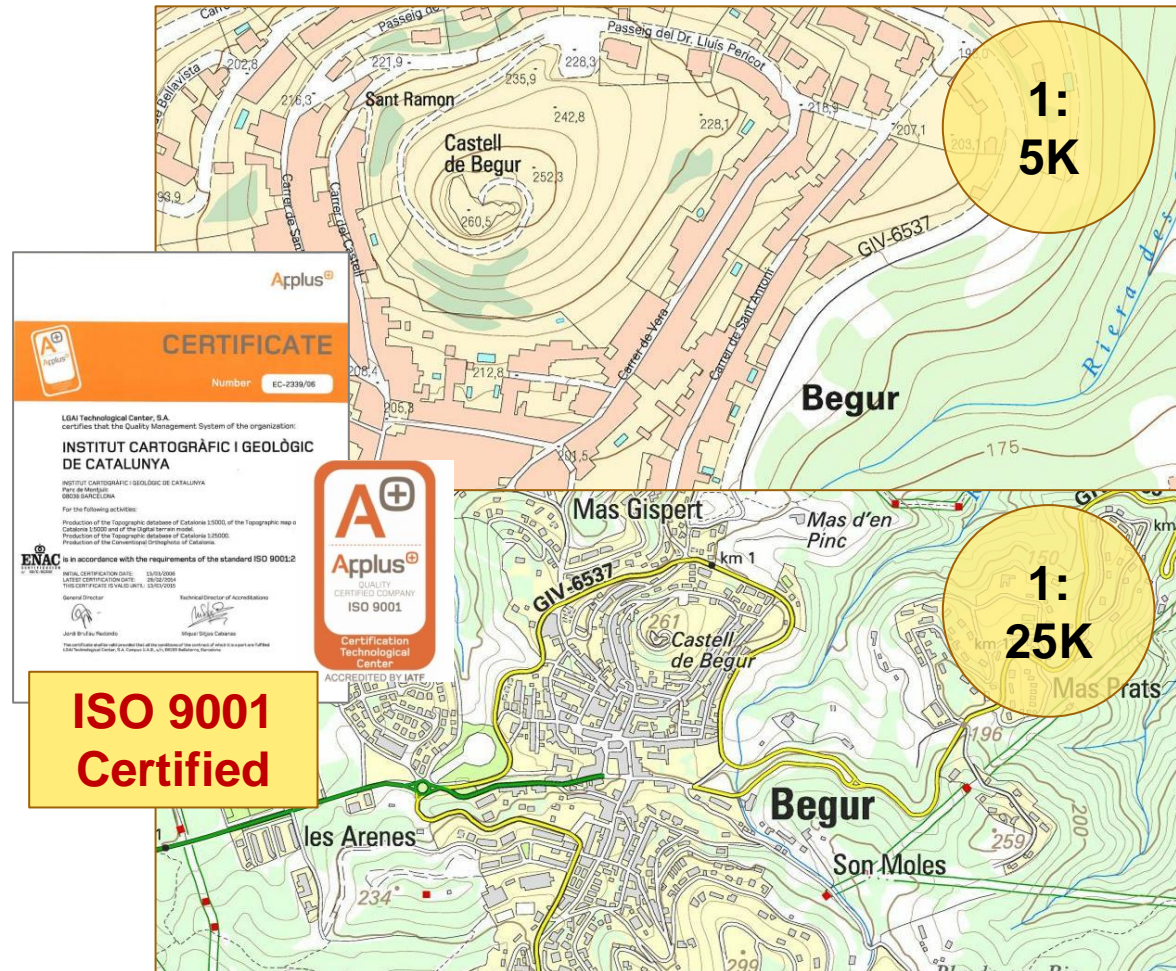


# Context

## Key products

### Large scale data

- **Vector data**
- Topographic databases
  - 1: 5K scale
  - 1: 25K scale
- **Raster data**
- **Orthoimagery**



# Context

## New production environment



- **From CAD to 3D-GIS**
- **Technical advances**
  - **Data capture**
    - DQ checking – Logical consistency, Topology...
  - **Data model**
    - Persistent identifiers, Object versioning, Life cycle information
    - Metadata at spatial object level, Incremental updates
    - Explicit relationship between geo names and spatial objects
- **Interoperability**
  - ISO standards, BTA, INSPIRE

## Context

### Metadata production

...Thinking also in  
on-demand datasets

### *2003-2006*

#### *ISO 19115 - driven*

- Metadata
- Identification
  - Data identification
  - Keywords
  - Constraints
  - Service identification
- Data Quality
- Reference System
- Distribution

### *In process / Future*

#### *ISO 19157:2014 - driven*

- Metadata
- Identification
  - Data identification
  - Keywords
  - Constraints
  - Service identification
- Lineage
- Data Quality
- Reference System
- Distribution

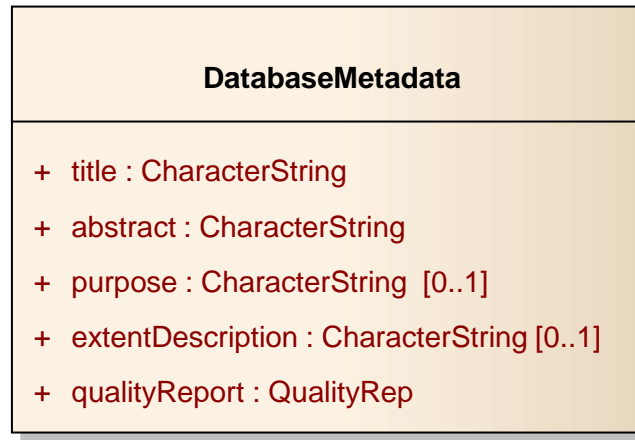
# Metadata organization

- **Metadata templates**
  - Excel spreadsheets / XML template files
  - Default metadata elements
  - Information related to production (e.g. Organization citation)
  - Common to different products
- **Metadata in the data model**
  - At different levels (database level & feature level)

# Metadata organization

## Database level

- **MD at database level**



- Minimum set of metadata required to describe the complete dataset

*Title, Version of data model, abstract, purpose, scale, geographic extent (spatial / temporal), topic categories, keywords, Overview quality information, lineage*



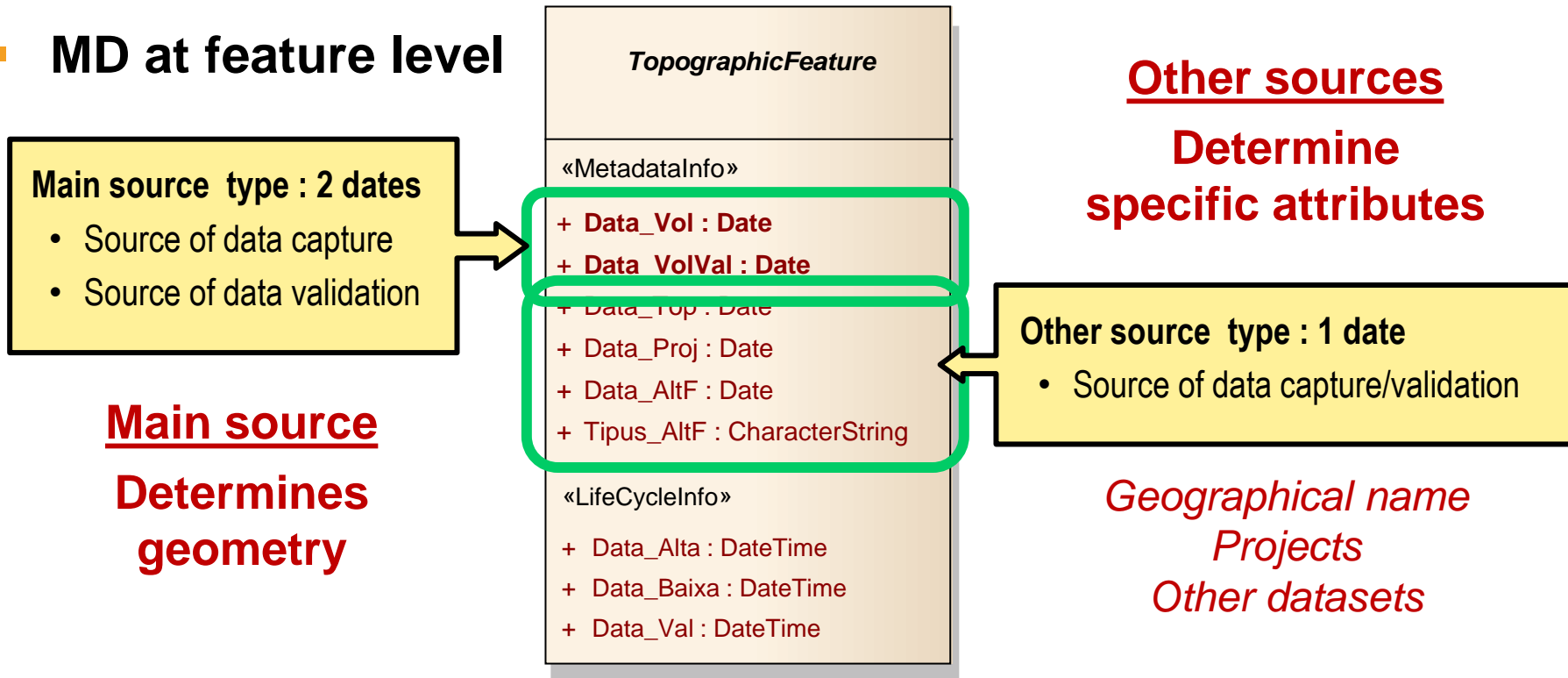
# Metadata organization

## Feature level

### Validation

If changes are detected, a new version of the spatial object is created

### ■ MD at feature level

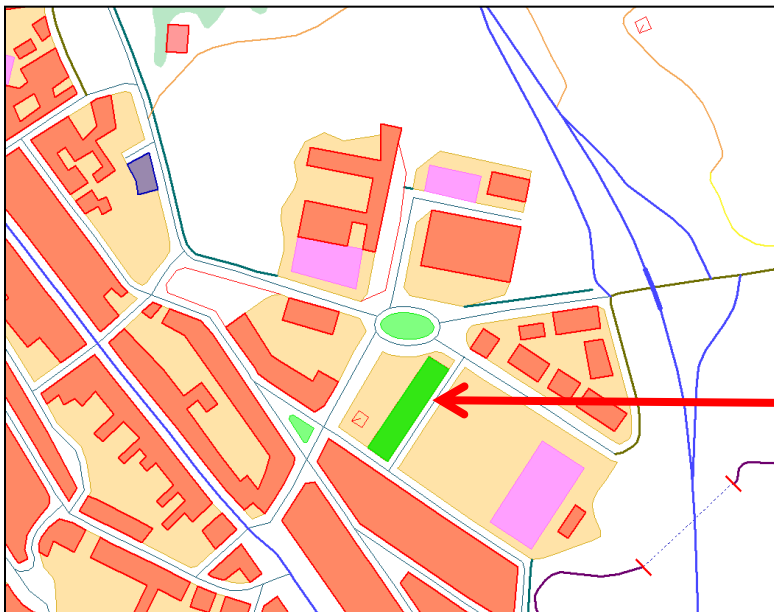


### ■ Different attributes to provide metadata information

# Example

## Link to other database

- From Geographical names database  
*Identifier* and *Name* of the geographic object
- Date of the revision of Geographical names database utilized



bt25mv20t.edifici\_servei Properties

General Attributes

Name	Value
<b>IDG</b>	237
IDO	00000004000339
IDR	1
IDT	6
DATA_ALTA	10/14/2013 11:07:04 AM
DATA_BAIXA	
DATA_VISI	10/14/2013 11:07:04 AM
TOP_ID	56748965
TOP_TEXT	Cal Battle
TOP_DATA	10/25/2013 11:07:04 AM
DATA_REV	10/20/2013 11:07:04 AM
ESTAT_ED	cas genèric
ORIENT_ED	

Close

## **Metadata *on-demand datasets*** **Not depending on subset request**

- **Metadata not depending on the subset**
  - **Information related to the organization**
    - Name, address, role...
  - **Constraints**
    - Use limitation, security and legal constraints

# Metadata *on-demand datasets*

## Depending on subset request

### ■ Common metadata at database level

- Identification
  - Title, abstract, purpose,
  - Spatial resolution, topic category
  - Service identification
- Reference systems
- Distribution
  - Format, transfer options, standard order process
- Quality report

DatabaseMetadata
+ <b>title</b> : CharacterString
+ <b>abstract</b> : CharacterString
+ <b>purpose</b> : CharacterString [0..1]
+ <b>extentDescription</b> : CharacterString [0..1]
+ <b>qualityReportElement</b> : QualityRep



# Metadata *on-demand datasets*

## Depending on subset request

### ■ Specific metadata

#### ■ Metadata

- Date of the metadata creation

#### ■ Identification

- Date and type of date >

Newest *Data\_Val*, as “Creation” or “Revision” date

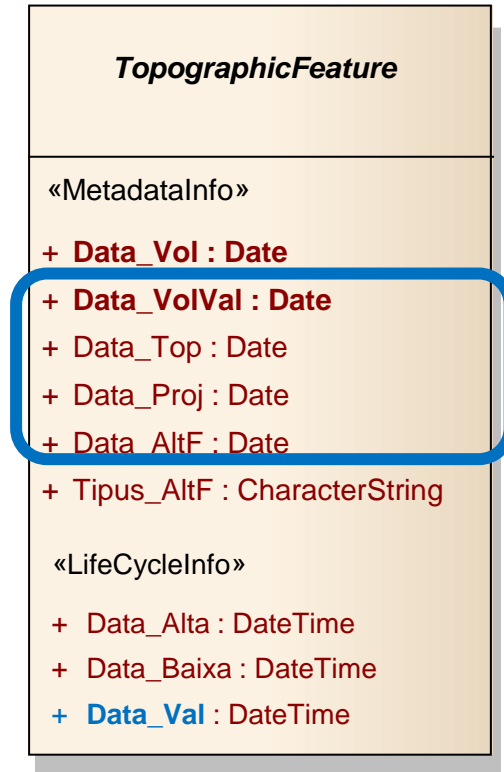
Date of the dataset extraction, as “Publication” date

- Geographic extent > Bounding box coordinates computed from subset request

- Temporal extent >

From oldest date of validation to newest one in “*MetadataInfo*”

It can be provided as an interval or a list



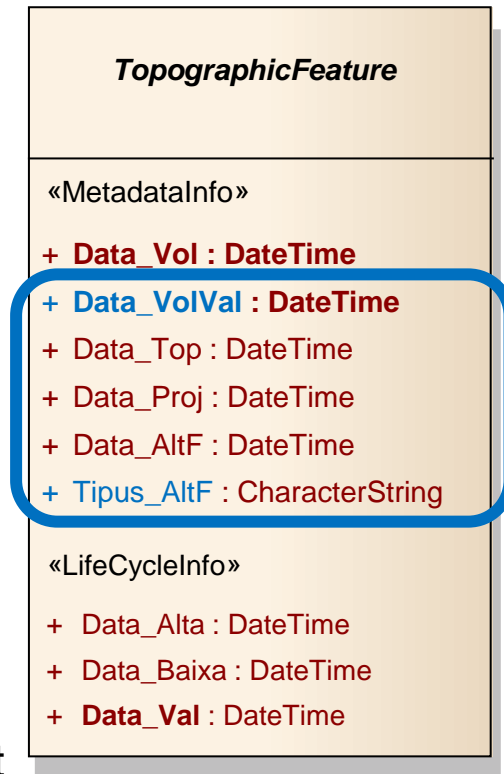
# Metadata *on-demand datasets*

## Depending on subset request

### ■ Specific metadata

- Keywords
  - Temporal > Years from the temporal extent period
  - Place > Selection of geo names in the dataset
- Lineage
  - Statement > From “*MetadataInfo*” values in the dataset

*The main source of data has been photogrammetric flights from (**oldest Data\_VolVal**) to (**newest Data\_VolVal**); geographical names came from the ICGC database; other sources have been **Tipus\_AltF** and information related to the transport network projects.*



# Conclusions

- **Basic proposal**
- **Adaptable to different types of subset requests**
  - Filtering by geographic extent
  - Filtering by feature or layer selection
  - Filtering by spatial object metadata
  - Combinations
- **Applicable to corporate downloading services**
  - SDI geoportal applications
  - WFS
- **Looking forward to share experiences**

**Thank you  
for your attention**

**Questions?**

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