An insight to INSPIRE Coverages

INSPIRE Community Forum

Elevation, Orthoimagery, Reference systems and Geographical grids

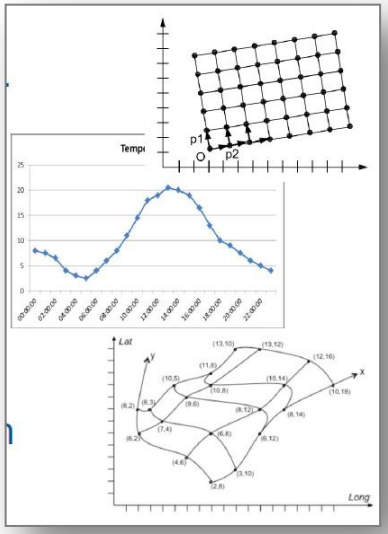
Observations & Measurements

Software & Tools

Jordi Escriu & Kathi Schleidt & Peter Baumann

European Commission

Joint Research Centre



INSPIRE - Infrastructure for Spatial Information in Europe

DATA COVE

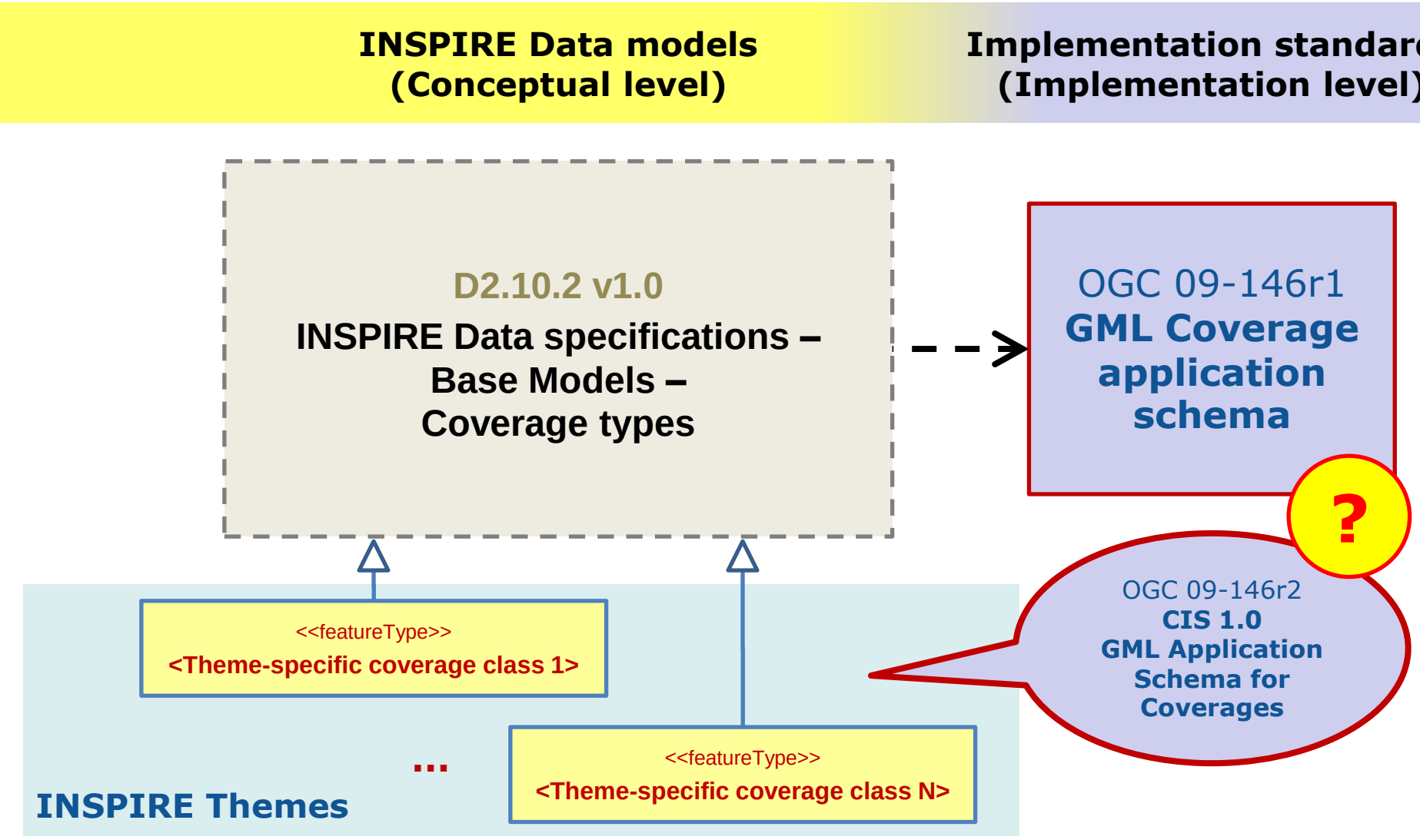
rasdaman raster data management

JACOBS UNIVERSITY

IDEC Infraestructura de Dades Espacials de Catalunya

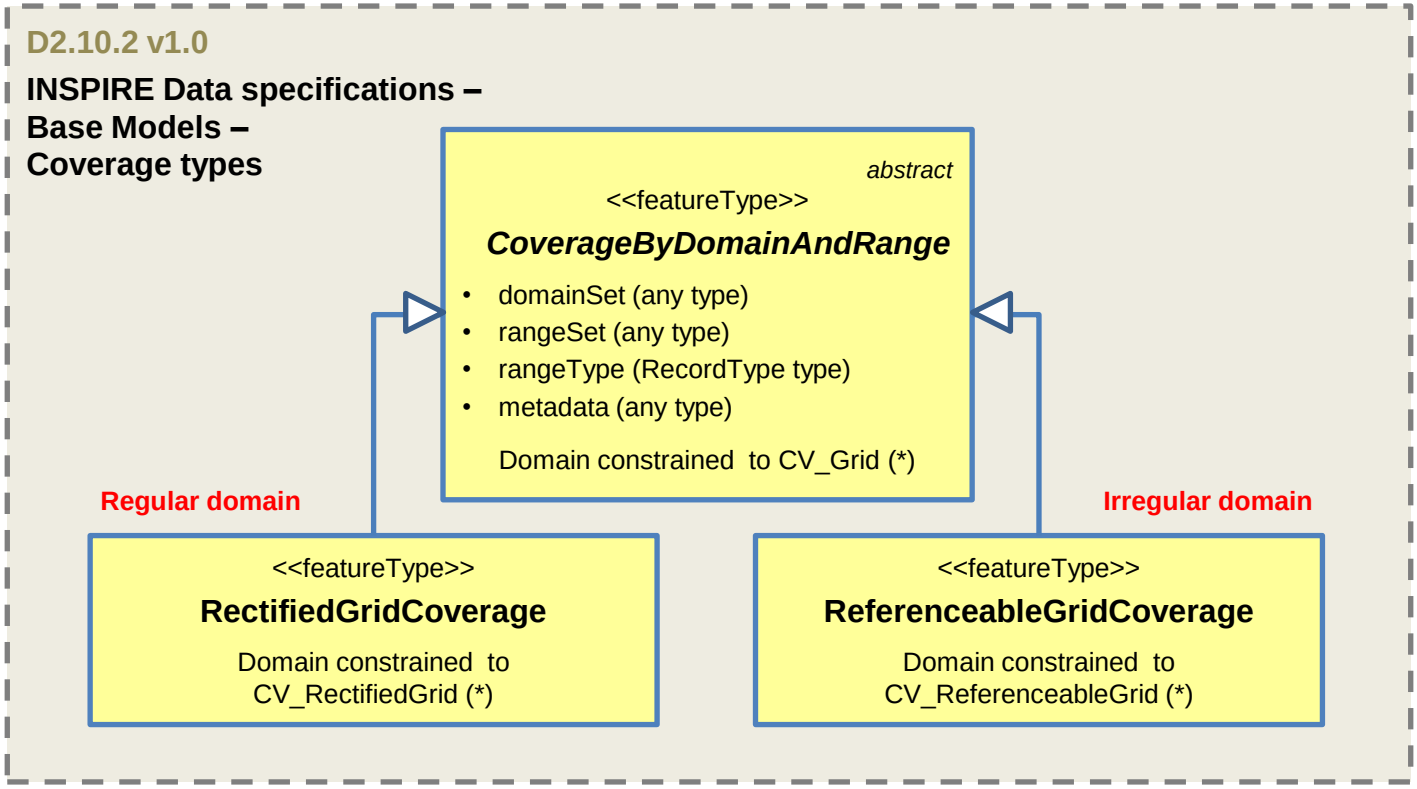
ICGC Institut Cartogràfic i Geològic de Catalunya

INSPIRE Coverages
Modelled at conceptual level



INSPIRE Coverages

Common seed model for all INSPIRE themes



Regular grids **Irregular grids**

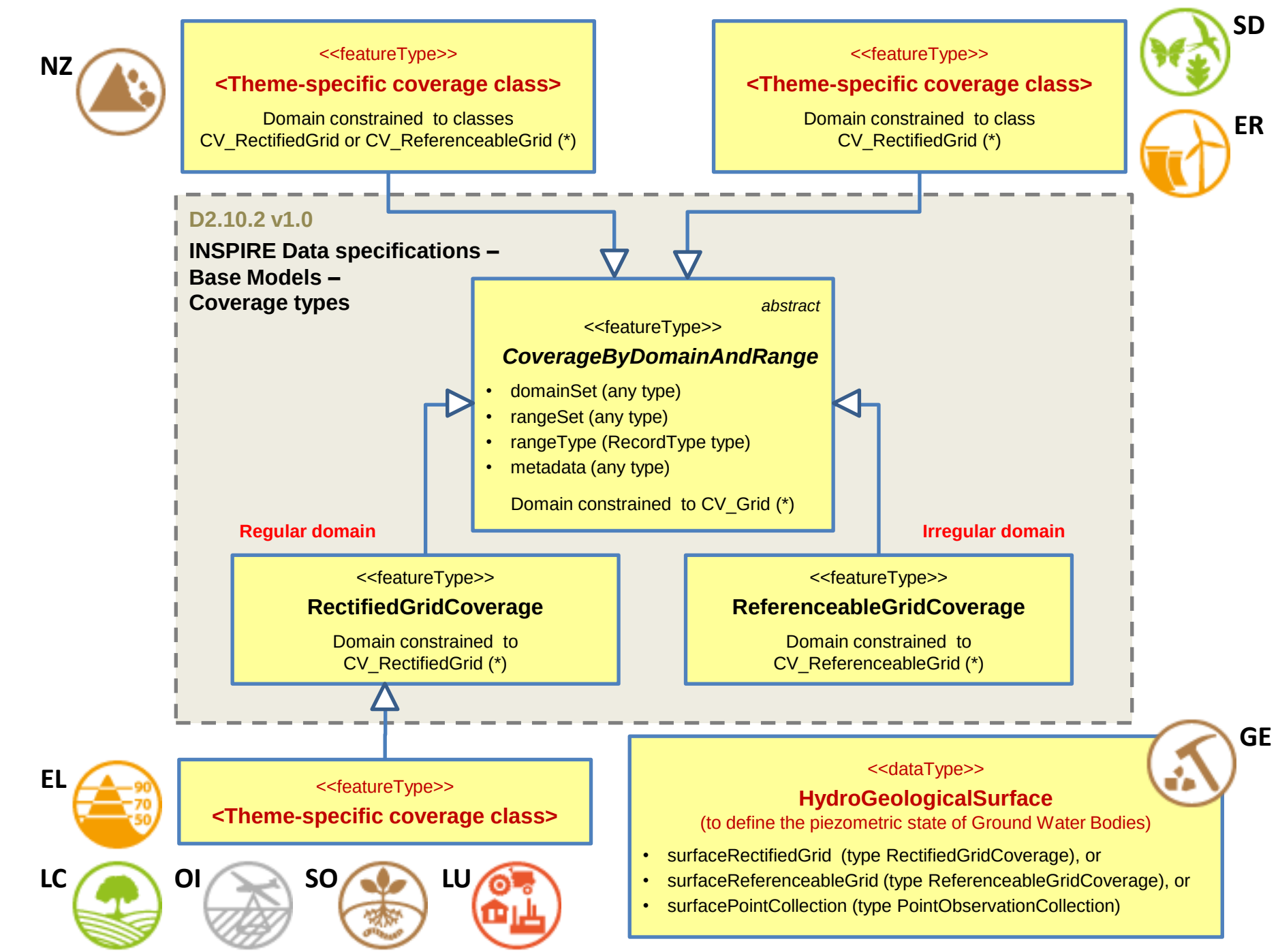
Use of coverages in INSPIRE

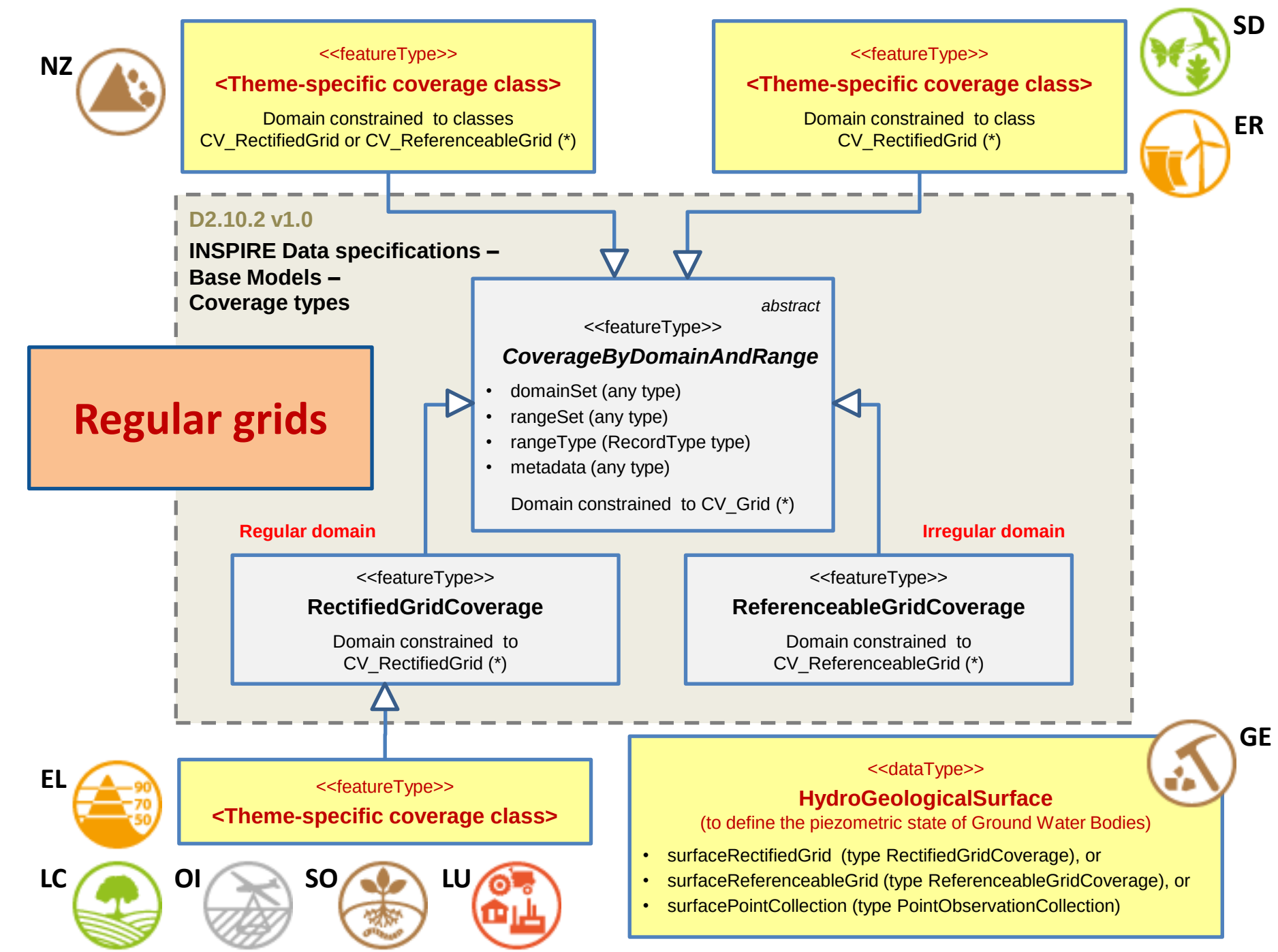
- **WCS view: Coverages as Features**
- **SOS view: Coverages as Observation Results**

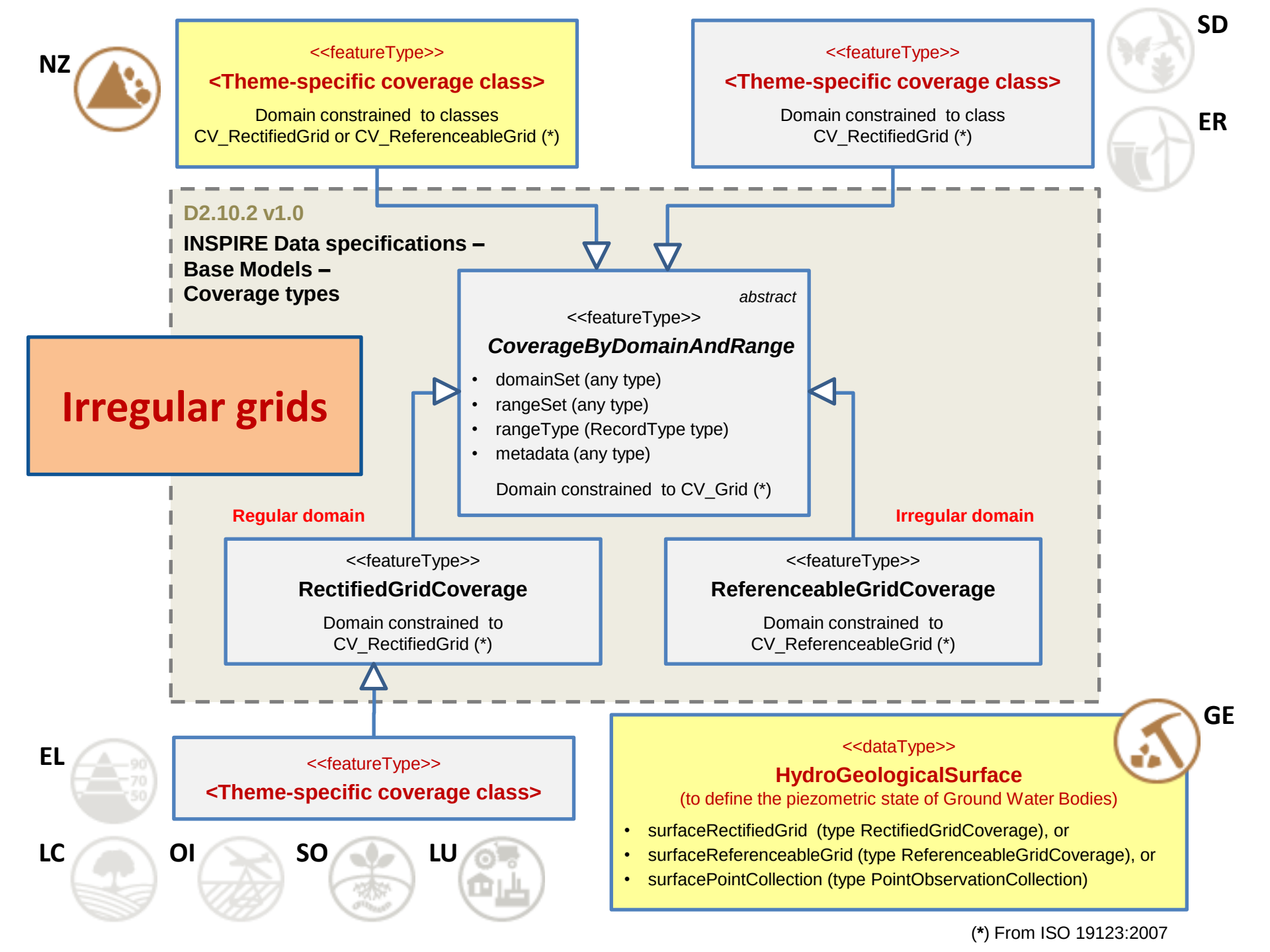
WCS view: Coverages as Features

INSPIRE FeatureTypes based on Coverage Classes

- **Regular grids**:
  - Elevation (EL)
  - Land cover (LC)
  - Orthoimagery (OI)
  - Soil (SO)
  - Energy resources (ER).
  - Species distribution (SD) - Application schema deprecated.
- **Regular or Irregular grids:**
  - Natural risk zones (NZ)
  - Geology (GE).


NZ
<<featureType>>
<Theme-specific coverage class>
Domain constrained to classes
CV_RectifiedGrid or CV_ReferenceableGrid (*)
<<featureType>>
<Theme-specific coverage class>
Domain constrained to class
CV_RectifiedGrid (*)
SD
ER
D2.10.2 v1.0
INSPIRE Data specifications –
Base Models –
Coverage types
abstract
<<featureType>>
CoverageByDomainAndRange
domainSet (any type)
rangeSet (any type)
rangeType (RecordType type)
metadata (any type)
Domain constrained to CV_Grid (*)
Regular domain
Irregular domain
<<featureType>>
RectifiedGridCoverage
Domain constrained to
CV_RectifiedGrid (*)
<<featureType>>
ReferenceableGridCoverage
Domain constrained to
CV_ReferenceableGrid (*)
EL
<<featureType>>
<Theme-specific coverage class>
GE
<<dataType>>
HydroGeologicalSurface
(to define the piezometric state of Ground Water Bodies)
surfaceRectifiedGrid (type RectifiedGridCoverage), or
surfaceReferenceableGrid (type ReferenceableGridCoverage), or
surfacePointCollection (type PointObservationCollection)
LC
OI
SO
LU
(*) From ISO 19123:2007


NZ
<<featureType>>
<Theme-specific coverage class>
Domain constrained to classes
CV_RectifiedGrid or CV_ReferenceableGrid (*)
<<featureType>>
<Theme-specific coverage class>
Domain constrained to class
CV_RectifiedGrid (*)
SD
ER
D2.10.2 v1.0
INSPIRE Data specifications –
Base Models –
Coverage types
Regular grids
abstract
<<featureType>>
CoverageByDomainAndRange
domainSet (any type)
rangeSet (any type)
rangeType (RecordType type)
metadata (any type)
Domain constrained to CV_Grid (*)
Regular domain
Irregular domain
<<featureType>>
RectifiedGridCoverage
Domain constrained to
CV_RectifiedGrid (*)
<<featureType>>
ReferenceableGridCoverage
Domain constrained to
CV_ReferenceableGrid (*)
EL
<<featureType>>
<Theme-specific coverage class>
GE
<<dataType>>
HydroGeologicalSurface
(to define the piezometric state of Ground Water Bodies)
surfaceRectifiedGrid (type RectifiedGridCoverage), or
surfaceReferenceableGrid (type ReferenceableGridCoverage), or
surfacePointCollection (type PointObservationCollection)
LC
OI
SO
LU
(*) From ISO 19123:2007


NZ
<<featureType>>
<Theme-specific coverage class>
Domain constrained to classes
CV_RectifiedGrid or CV_ReferenceableGrid (*)
<<featureType>>
<Theme-specific coverage class>
Domain constrained to class
CV_RectifiedGrid (*)
SD
ER
D2.10.2 v1.0
INSPIRE Data specifications –
Base Models –
Coverage types
Irregular grids
abstract
<<featureType>>
CoverageByDomainAndRange
domainSet (any type)
rangeSet (any type)
rangeType (RecordType type)
metadata (any type)
Domain constrained to CV_Grid (*)
Regular domain
Irregular domain
<<featureType>>
RectifiedGridCoverage
Domain constrained to
CV_RectifiedGrid (*)
<<featureType>>
ReferenceableGridCoverage
Domain constrained to
CV_ReferenceableGrid (*)
EL
<<featureType>>
<Theme-specific coverage class>
GE
<<dataType>>
HydroGeologicalSurface
(to define the piezometric state of Ground Water Bodies)
surfaceRectifiedGrid (type RectifiedGridCoverage), or
surfaceReferenceableGrid (type ReferenceableGridCoverage), or
surfacePointCollection (type PointObservationCollection)
LC
OI
SO
LU
(*) From ISO 19123:2007

SOS view: Coverages as Observation Results

- **Regular or irregular grids**
  - Environmental monitoring facilities (EF)
  - Atmospheric conditions (AC)
  - Meteorological geographic features (MF)
  - Oceanographic geographic features (OF)
  - Geology (GE)
- Provided as discrete observation coverages, i.e. gridded data specialized observation types applying the ISO 19156:2011 (O&M), following *INSPIRE D2.9 v3.0*

SOS view: Coverages as Observation Results

Coverage based models in the observational context

D2.9 v3.0

INSPIRE Guidelines for the use of
Observations & Measurements and Sensor Web Enablement-related standards
in INSPIRE Annex II and III data specification development

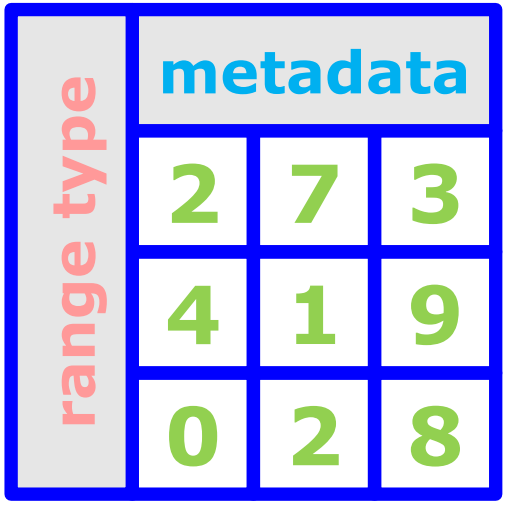
Based on ISO 19156:2011 Observations and Measurements standard (O&M in OGC)

Use of Gridded Data specialized observation types.

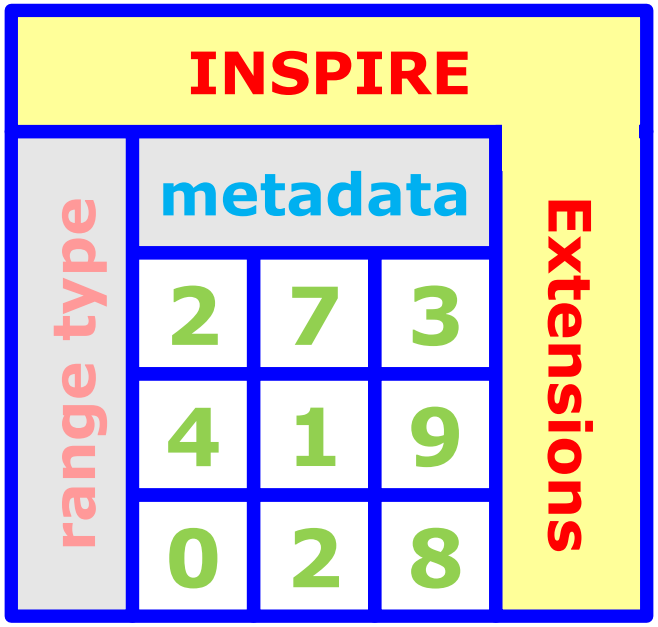
Implementation of INSPIRE Coverage

What is exactly the issue? INSPIRE Extensions

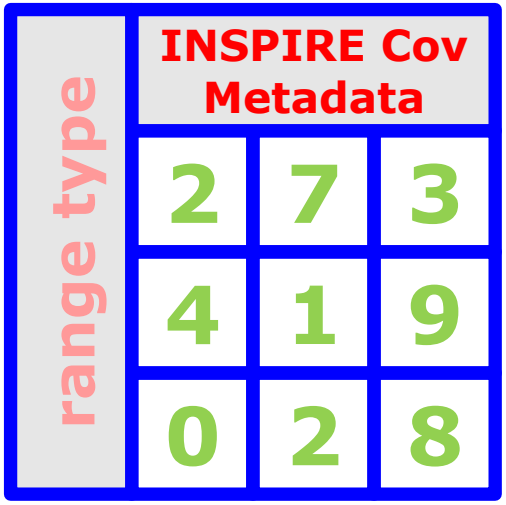
OGC CIS1.0
Implementation model



INSPIRE
Conceptual model



INSPIRE
Implementation model
(PROPOSAL)



Thanks for your attention!

Peter Baumann

baumann@rasdaman.com

Kathi Schleidt

kathi@DataCove.eu

Jordi Escriu

jordi.escriu@icgc.cat

rasdaman raster data management

JACOBS UNIVERSITY

DATA COVE©

IDEC Infraestructura de Dades Espacials de Catalunya

ICGC Institut Cartogràfic i Geològic de Catalunya