Agreed changes to the INSPIRE Technical Documentation for "D2.8.II.1 INSPIRE Data Specification on Elevation – Technical Guidelines" version 3.0

Color coded legend: <mark style="background:red">onlineDescription</mark> - red color: what is agreed to be changed

<mark style="background:yellow">externalDescription</mark> – yellow color: what is the precise change

Change: 1

Affected documents: **TGs**

Themes: **Elevation, Orthoimagery**, (+)

Subject: Clarify structure of coverage encoding-related sections in TGs - "Default encoding(s)" and "Alternative encoding(s)"

Description: The structure of sections "Default encoding(s)" (e.g. 9.4.1.2 in the Elevation TG) and "Alternative encoding(s)" (e.g. 9.4.2.1 in the Elevation TG) relative to coverage data need to be aligned with the different options foreseen to deliver this kind of data in INSPIRE (those explained in section 9.3 in the Elevation TG), in order to make it clear and avoid readers to misinterpret the content.
This is just an editorial clarification of the structure in the mentioned TG documents, rather than a change of content.
The proposal is applicable to both, TGs on Elevation and Orthoimagery, and probably to TGs from other INSPIRE themes dealing with coverage data.

Corrigendum: **proposal for Section 9.4.1.2 – Pages 114-116:**

9.4.1.2 – Default encoding(s) for application schema ElevationGridCoverage (coverage data)

Name: *ElevationGridCoverage* **GML Application Schema**

Version: version 3.0,

Specification: D2.8.**II**.1 Data Specification on *Elevation* – Technical Guidelines

Character set: UTF-8

The xml schema document is available on the INSPIRE website
http://inspire.jrc.ec.europa.eu/schemas/el-bas/3.0rc3/ElevationBaseTypes.xsd

A) GML multipart representation

A.1) GML Application Schema for Coverages (for the coverage domain)

Name: GML Application Schema for Coverages

Version: version 1.0.0

Specification: OGC GML Application Schema – Coverages [OGC 09-146r2]

Character set: UTF-8

The xml schema documents are available from *http://schemas.opengis.net/gmlcov/1.0/*.

A.2) TIFF (for the coverage range)

Name: TIFF

Version: 6

Specification: TIFF Baseline

Character set: UTF-8

NOTE The Geographic Tagged Image File Format (GeoTiff), associates geo-referencing information with TIFF imagery and gridded data by supplying metadata as TIFF tags. Since it fully complies with the TIFF 6.0 specifications, it may be implemented in place of TIFF format to meet this requirement.

TG Requirement 7	If the format used for encoding the coverage range also includes information about the coverage domain, this information shall be consistent with the information encoded using the GML Application Schema for Coverages.

EXAMPLE The following is a complete RectifiedGridCoverage instance showing an ElevationGridCoverage using GML multipart representation.

<<Include here the GMLCOV example proposed by 2647>> (See Corrigendum 4)

B) GML Application Schema for Coverages (for the coverage domain and range)

Name: GML Application Schema for Coverages

Version: version 1.0.0

Specification: OGC GML Application Schema – Coverages [OGC 09-146r2]

Character set: UTF-8

The xml schema documents are available from *http://schemas.opengis.net/gmlcov/1.0/*.

NOTE The GML Application Schema is to be used to encode both the domain and the range of the coverage.

"

Note that the current NOTE included in TG EL v3.0:

> *NOTE For elevation only one format is described below for representing the range set. Formats such as ESRI ASCII Grid are specifically excluded from this specification.*

… excluding the possibility to use ESRI ASCII Grid as an output format has been explicitly removed from this section. This has been done in order to align TG EL with the content of the *Technical Guidance for the implementation of INSPIRE Download Services using WCS v1.0 rc1*.

Change: 2

Affected documents: **TG**

Themes: **Elevation**

Subject: Adding guidelines for identifying the Vertical CRS

Description: Handling of Vertical CRS is specified at an abstract level in Section 6.2.1.4.1 - "General mechanism for the identification of the vertical CRS" of TG on EL, more concretely under "Vertical CRS linkage to Elevation grid coverages" heading and Figure 23 (on the basis of ISO 19123). However, this is not accompanied of clear rules on how to identify the vertical CRS at the implementation level (i.e. in GMLCOV schema).

Corrigendum:

At the end of section 5.5.1.2.4, after:

- *Quantity::uom attribute*
  The unit of measure, which shall be always specified.

the following bullet point shall be added:

- *Quantity::referenceFrame attribute*
  Identification of the vertical CRS used for referring the elevation values, which shall be always specified.

Change: 3

Affected documents: **TG**

Themes: **Elevation**

Subject: Wrong name for section A.8 Technical Guideline Conformance Class

Description: Section A.8 is called *A.2 Part 2 : Conformity with the technical guideline (TG) Requirements* instead of *A.8 Technical Guideline Conformance Class*.

Corrigendum:

Change: 4

Affected documents: **TG**

Themes: **Elevation**

Subject: Changing the ElevationGridCoverage encoding example

Description: The GMLCOV encoding example provided in Section 9.4.1.2 of TG on EL is taken directly from Section 6.7 of OGC 09-146r2 GML Application Schema, and it is addressing Radiance and not Elevation. Therefore it is not very useful in the TG on EL at implementation level.

Corrigendum: **Proposal for Section 9.4.1.2 – Pages 114-116:**

Apply the corrigendum already stated for section 9.4.1.2 in Issue number 44, incorporating the GMLCOV example proposed by 2647 – I.e.:

Replace the existing GMLCOV example in TG EL v3.0 pg.114 – pg116:

"EXAMPLE The following is a complete RectifiedGridCoverage instance (taken from [OGC 09-146r2]), using the base type RectifiedGridCoverage defined in the OGC GML Application Schema – Coverages available from http://schemas.opengis.net/gmlcov/1.0/."

```
<?xml version="1.0" encoding="UTF-8" ?> <gmlcov:RectifiedGridCoverage
xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gmlcov=‖http://www.opengis.net/gmlcov/1.0"
xmlns:gml=‖http://www.opengis.net/gml/3.2" xsi:schemaLocation= ‖http://www.opengis.net/gmlcov/1.0
http://schemas.opengis.net/gmlcov/1.0/gmlcovAll.xsd" gml:id="C001"> <gml:boundedBy> <gml:Envelope
srsName="http://www.opengis.net/def/crs/EPSG/0/4326" axisLabels="Lat Long" uomLabels="deg deg"
srsDimension="2"> <gml:lowerCorner>1 1</gml:lowerCorner> <gml:upperCorner>3 3</gml:upperCorner>
</gml:Envelope> </gml:boundedBy>
<gml:domainSet> <gml:RectifiedGrid gml:id="RG001_C001"
srsName="http://www.opengis.net/def/crs/EPSG/0/4326" axisLabels="Lat Long" uomLabels="deg deg"
dimension="2"> <gml:limits> <gml:GridEnvelope> <gml:low>0 0</gml:low> <gml:high>9999 9999</gml:high>
</gml:GridEnvelope> </gml:limits> <gml:axisLabels>Lat Long</gml:axisLabels> <gml:origin> <gml:Point
gml:id="P001_C001" srsName="http://www.opengis.net/def/crs/EPSG/0/4326"> <gml:pos>99. 99.9</gml:pos>
</gml:Point> </gml:origin> <gml:offsetVector>1 0</gml:offsetVector> <gml:offsetVector>0
1</gml:offsetVector> </gml:RectifiedGrid> </gml:domainSet> <rangeType>
<swe:DataRecord> <swe:field name="white"> <swe:Quantity
definition="http://opengis.net/def/property/OGC/0/Radiance">
<gml:description>Panchromatic</gml:description> <gml:name>White</gml:name> <swe:nilValues>
<swe:nilValue reason="http://www.opengis.net/def/nil/OGC/0/BelowDetectionRange"> 0 </swe:nilValue>
<swe:nilValue reason="http://www.opengis.net/def/nil/OGC/0/AboveDetectionRange"> 255 </swe:nilValue>
</swe:nilValues> <swe:uom code="W/cm2"/> <swe:constraint> <swe:AllowedValues> <swe:interval>0
255</swe:interval> <swe:significantFigures>3</swe:significantFigures> </swe:AllowedValues>
</swe:constraint> </swe:Quantity> </swe:field>
</swe:DataRecord> </rangeType> <gml:coverageFunction> <gml:GridFunction> <gml:sequenceRule
axisOrder="+1 +2">Linear</gml:sequenceRule> <gml:startPoint>0 0</gml:startPoint> </gml:GridFunction>
```

```
</gml:coverageFunction> <gml:rangeSet> <DataBlock> <rangeParameters/> <tupleList> 1 2 3 4 5 6 7 8 9 10 11
12 13 14 15
</tupleList> </DataBlock> </gml:rangeSet> </gmlcov:RectifiedGridCoverage>
```

…with the following proposal (provided by 2647):

"EXAMPLE The following is a complete RectifiedGridCoverage instance showing an ElevationGridCoverage using GML multipart representation."

Discussion link: https://ies-svn.jrc.ec.europa.eu/issues/2647

https://themes.jrc.ec.europa.eu/discussion/view/42326/need-more-guidance-for-elevation-encoding-and-correct-example-for-elevationgridcoverage-on-the-basis-of-gmlcov-schema

https://themes.jrc.ec.europa.eu/pages/view/60561/provide-an-elevationgridcoverage-encoding-example-and-guidelines-for-identifying-the-vertical-crs

https://themes.jrc.ec.europa.eu/file/view/59232/example-elevation-grid-coverages-single-coverage-tested-final