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Regional training workshop on geographical information system for energy planning

UNIVERSITÉ DE GENÈVE

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Data and metadata collection guidelines

Introduction to metadata for geographic data

Dakar, 12 August 2014

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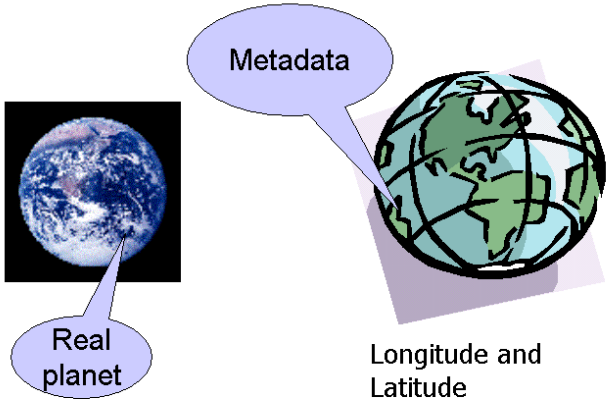
Introduction to metadata for geographic data

Metadata is a data….

…which describe another data.

It provides information about a certain item's content. For example, an image may include metadata that describes how large the picture is, the color depth, the image resolution, when the image was created, and other data.

Geospatial metadata (geographic metadata) is a type of metadata that is applicable to objects that have an explicit or implicit geographic extent



Metadata is a vital tool for management of spatial data and plays a key role in any spatial data infrastructure (SDI) initiative

The glue in a Spatial Data Infrastructure

Why metadata ?????

1) Access

2) Interoperability

3) Management

4) Rights

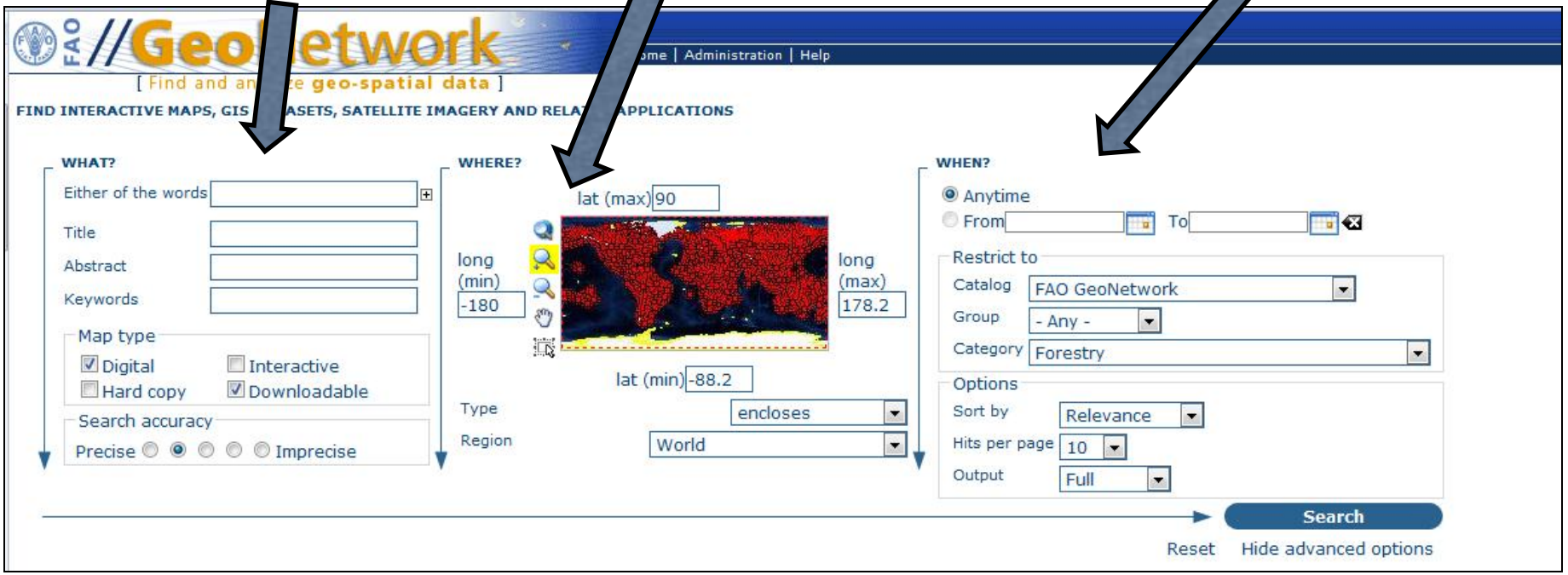
5) Preservation

1) Access

Thematic: what? (water quality)

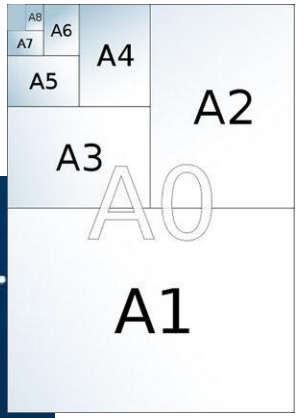
Spatial: where? (Africa)

Temporal: when? (2001)



Access.
With metadata, it is possible to do search on different criteria such as geographic location, date last updated, etc..

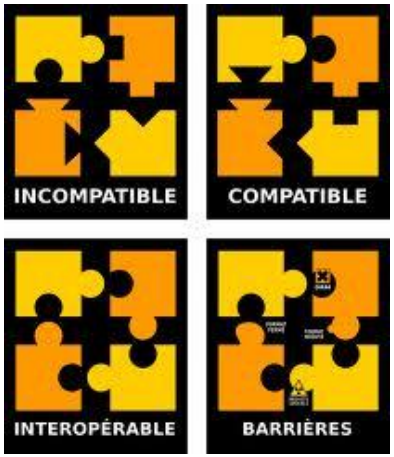
2) Interoperability (i)



Standards, Standards, Standards, Standards, ...

Standards are everywhere: from the size and weight of the paper we place in our printers to the way we send emails. ..

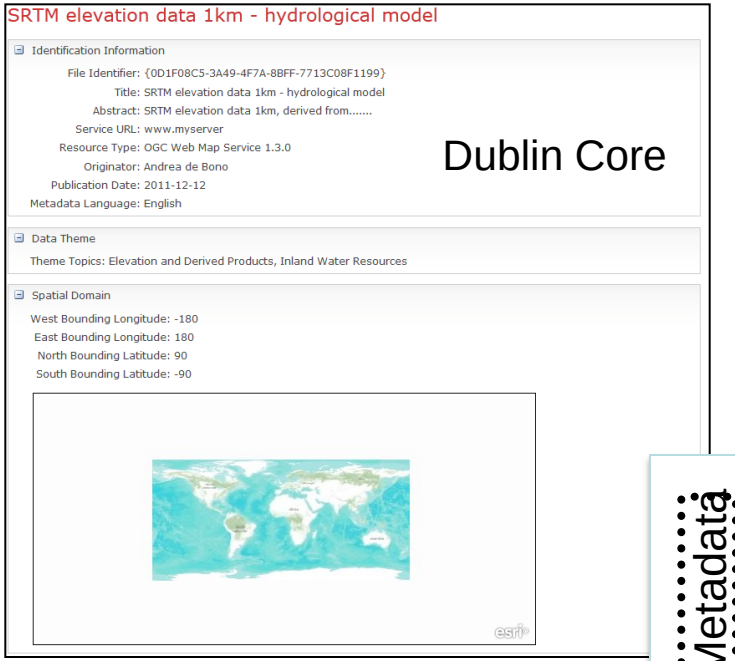
Interoperability: "the ability of two or more systems or components to exchange information and to use the information that has been exchanged"

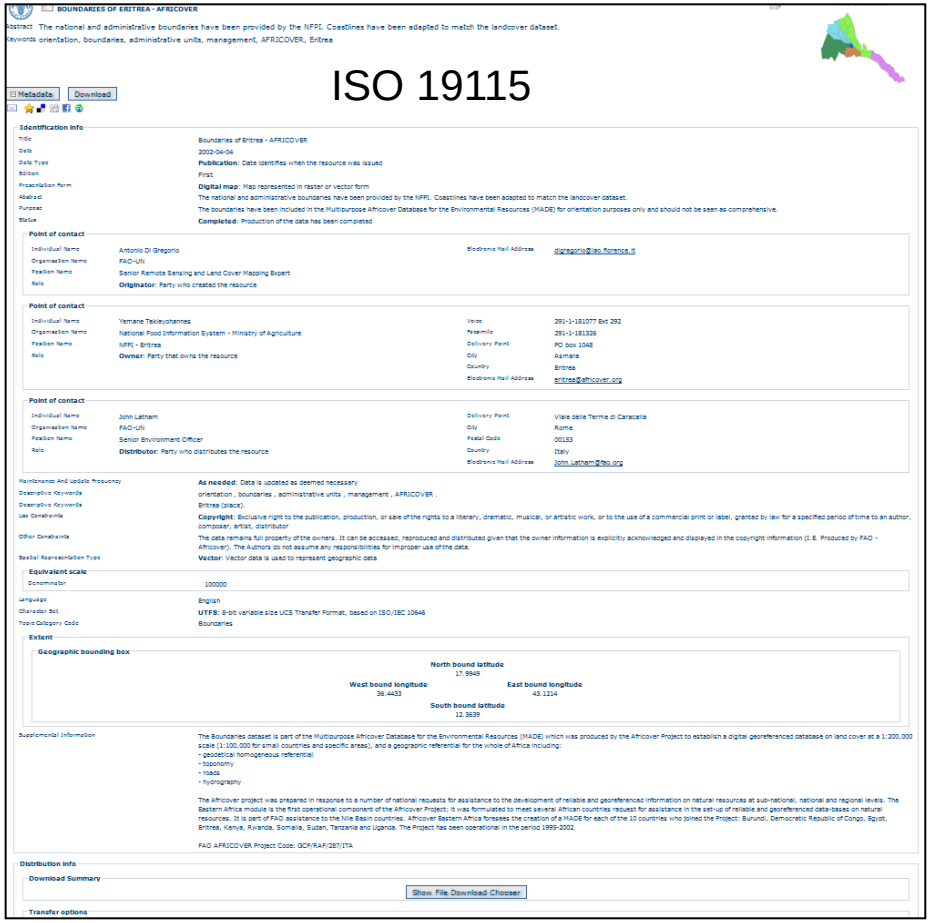


2) Interoperability (ii)

Geographic metadata standards:

- Dublin Core
- FGDC
- ISO 19115/19139

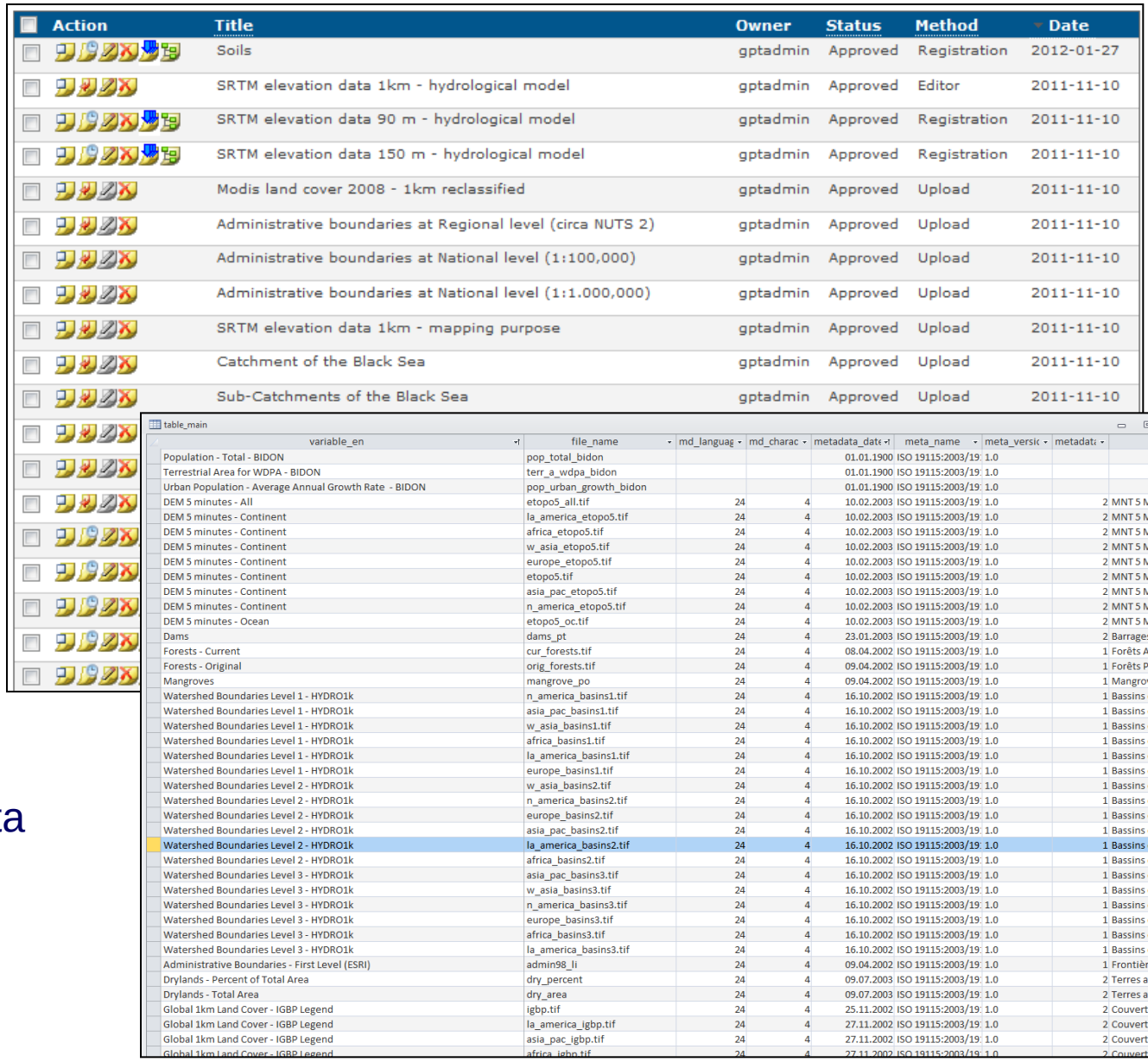




Metadata CSW 2.0.1

Metadata are based on standards, used to have the same level of information and prevent loss of knowledge about the data

3) Management



Action	Title	Owner	Status	Method	Date
	Soils	gptadmin	Approved	Registration	2012-01-27
	SRTM elevation data 1km - hydrological model	gptadmin	Approved	Editor	2011-11-10
	SRTM elevation data 90 m - hydrological model	gptadmin	Approved	Registration	2011-11-10
	SRTM elevation data 150 m - hydrological model	gptadmin	Approved	Registration	2011-11-10
	Modis land cover 2008 - 1km reclassified	gptadmin	Approved	Upload	2011-11-10
	Administrative boundaries at Regional level (circa NUTS 2)	gptadmin	Approved	Upload	2011-11-10
	Administrative boundaries at National level (1:100,000)	gptadmin	Approved	Upload	2011-11-10
	Administrative boundaries at National level (1:1.000,000)	gptadmin	Approved	Upload	2011-11-10
	SRTM elevation data 1km - mapping purpose	gptadmin	Approved	Upload	2011-11-10
	Catchment of the Black Sea	gptadmin	Approved	Upload	2011-11-10
	Sub-Catchments of the Black Sea	gptadmin	Approved	Upload	2011-11-10

table_main

variable_en	file_name	md_languag	md_charac	metadata_date	meta_name	meta_versic	metadat
Population - Total - BIDON	pop_total_bidon			01.01.1900	ISO 19115:2003/19	1.0	
Terrestrial Area for WDPA - BIDON	terr_a_wdpa_bidon			01.01.1900	ISO 19115:2003/19	1.0	
Urban Population - Average Annual Growth Rate - BIDON	pop_urban_growth_bidon			01.01.1900	ISO 19115:2003/19	1.0	
DEM 5 minutes - All	etopo5_all.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	la_america_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	africa_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	w_asia_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	europe_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	asia_pac_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Continent	n_america_etopo5.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
DEM 5 minutes - Ocean	etopo5_oc.tif	24	4	10.02.2003	ISO 19115:2003/19	1.0	2 MNT 5 Minu
Dams	dams_pt	24	4	23.01.2003	ISO 19115:2003/19	1.0	2 Barrages
Forests - Current	cur_forests.tif	24	4	08.04.2002	ISO 19115:2003/19	1.0	1 Forêts Actu
Forests - Original	orig_forests.tif	24	4	09.04.2002	ISO 19115:2003/19	1.0	1 Forêts Prim
Mangroves	mangrove_po	24	4	09.04.2002	ISO 19115:2003/19	1.0	1 Mangroves
Watershed Boundaries Level 1 - HYDRO1k	n_america_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 1 - HYDRO1k	asia_pac_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 1 - HYDRO1k	w_asia_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 1 - HYDRO1k	africa_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 1 - HYDRO1k	la_america_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 1 - HYDRO1k	europe_basins1.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	w_asia_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	n_america_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	europe_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	asia_pac_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	la_america_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 2 - HYDRO1k	africa_basins2.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	asia_pac_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	w_asia_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	n_america_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	europe_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	africa_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Watershed Boundaries Level 3 - HYDRO1k	la_america_basins3.tif	24	4	16.10.2002	ISO 19115:2003/19	1.0	1 Bassins de l
Administrative Boundaries - First Level (ESRI)	admin98_li	24	4	09.04.2002	ISO 19115:2003/19	1.0	1 Frontières
Drylands - Percent of Total Area	dry_percent	24	4	09.07.2003	ISO 19115:2003/19	1.0	2 Terres aride
Drylands - Total Area	dry_area	24	4	09.07.2003	ISO 19115:2003/19	1.0	2 Terres aride
Global 1km Land Cover - IGBP Legend	igbp.tif	24	4	25.11.2002	ISO 19115:2003/19	1.0	2 Couverture
Global 1km Land Cover - IGBP Legend	la_america_igbp.tif	24	4	27.11.2002	ISO 19115:2003/19	1.0	2 Couverture
Global 1km Land Cover - IGBP Legend	asia_pac_igbp.tif	24	4	27.11.2002	ISO 19115:2003/19	1.0	2 Couverture
Global 1km Land Cover - IGBP Legend	africa_igbp.tif	24	4	27.11.2002	ISO 19115:2003/19	1.0	2 Couverture

Manages the organization of data storage.

4) Rights (i)

Manages and protects the rights

metadata catalog don’t gives directly the access to the spatial data:…

They inform the user about the existence of a dataset.

They manage the access to the resource according to the rights of different users:

•Visualization and export of metadata

•Visualization of the data (trough web-mapping services eg WMS)

•Access to the data (downloading)

Finally they inform the user about the right of use

4) Rights (ii)

License

A license is a contract under which the owner of copyright defines its counterparty the conditions under which these data can be:

- **used,**
- **disseminated,**
- **modified**

Examples: Customized license (FAO Africover)

Use Constraints	**Copyright**: Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
Other Constraints	The data remains full property of the owners. It can be accessed, reproduced and distributed given that the owner information is explicitly acknowledged and displayed in the copyright information (I.E. Produced by FAO - Africover). The Authors do not assume any responsibilities for improper use of the data.

Examples: Standardized license: Creative Common (CC)

Most open

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This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials.

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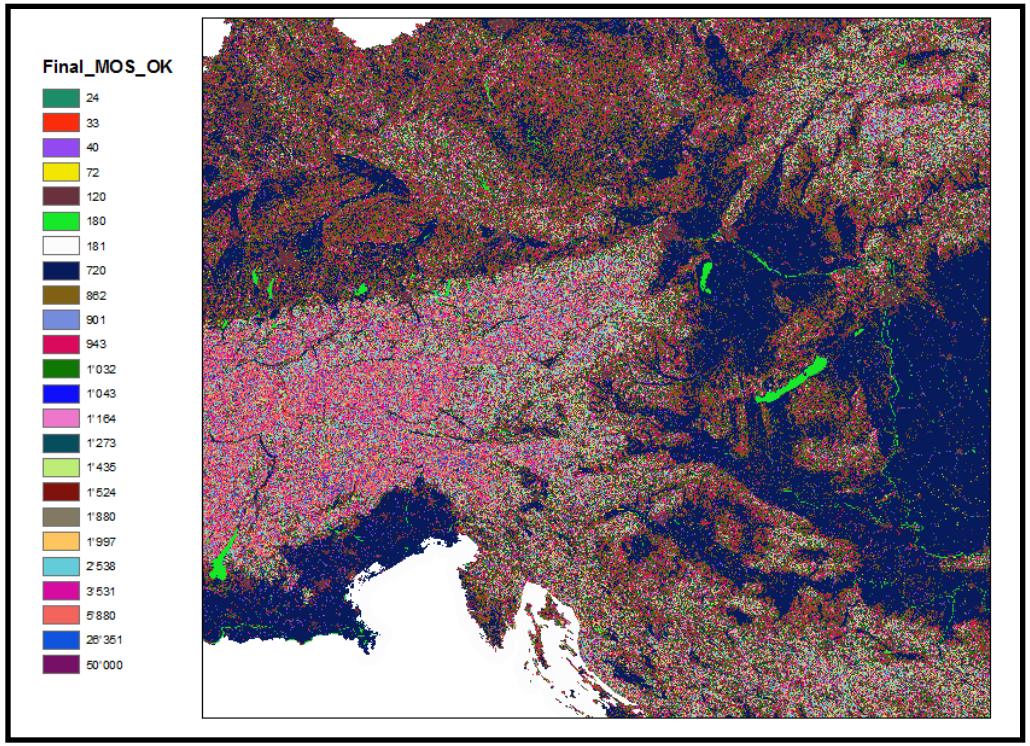
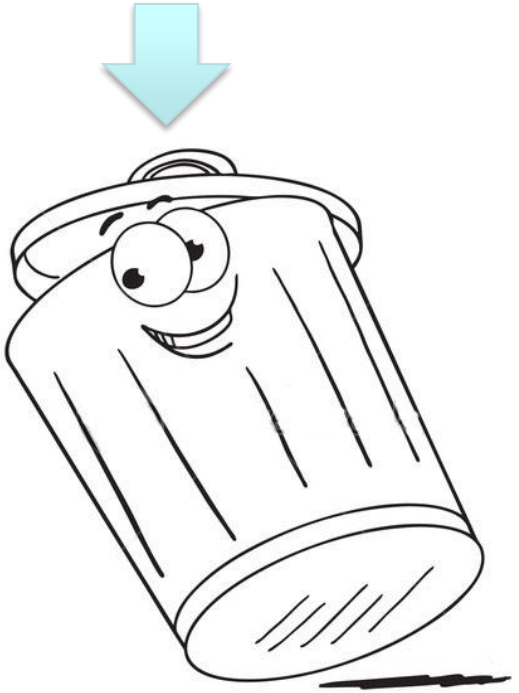
http://creativecommons.org/examples

5) Preservation

Any idea ????



Good for trash!!



International Organization for Standardization

ISO, derived from the Greek isos, meaning "equal“

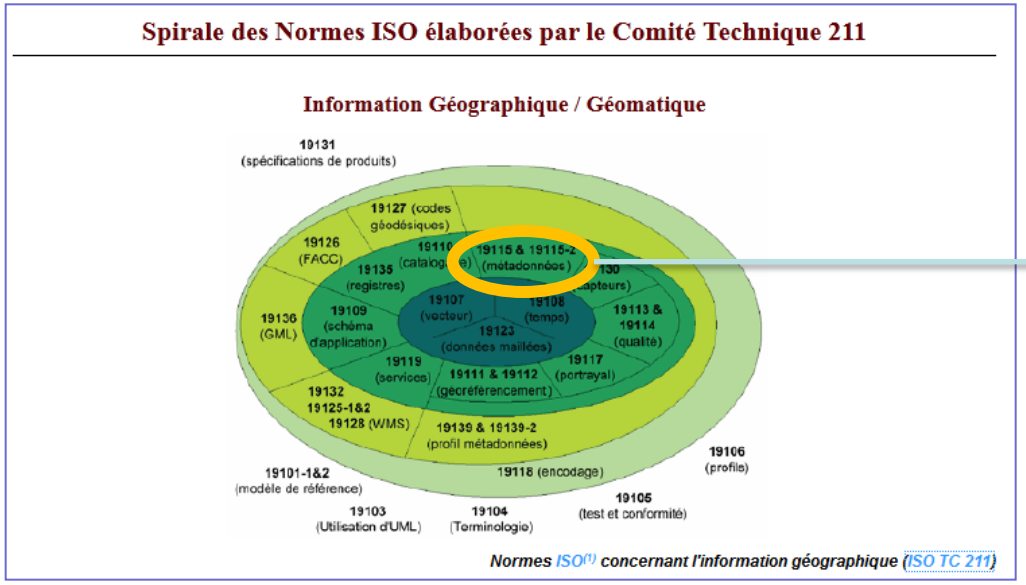
ISO has developed over 19 000 International Standards on a variety of subjects and more than 1000 new ISO standards are published every year

ISO/TC 211
Geographic information/Geomatics

Scope

Standardization in the field of digital geographic information.

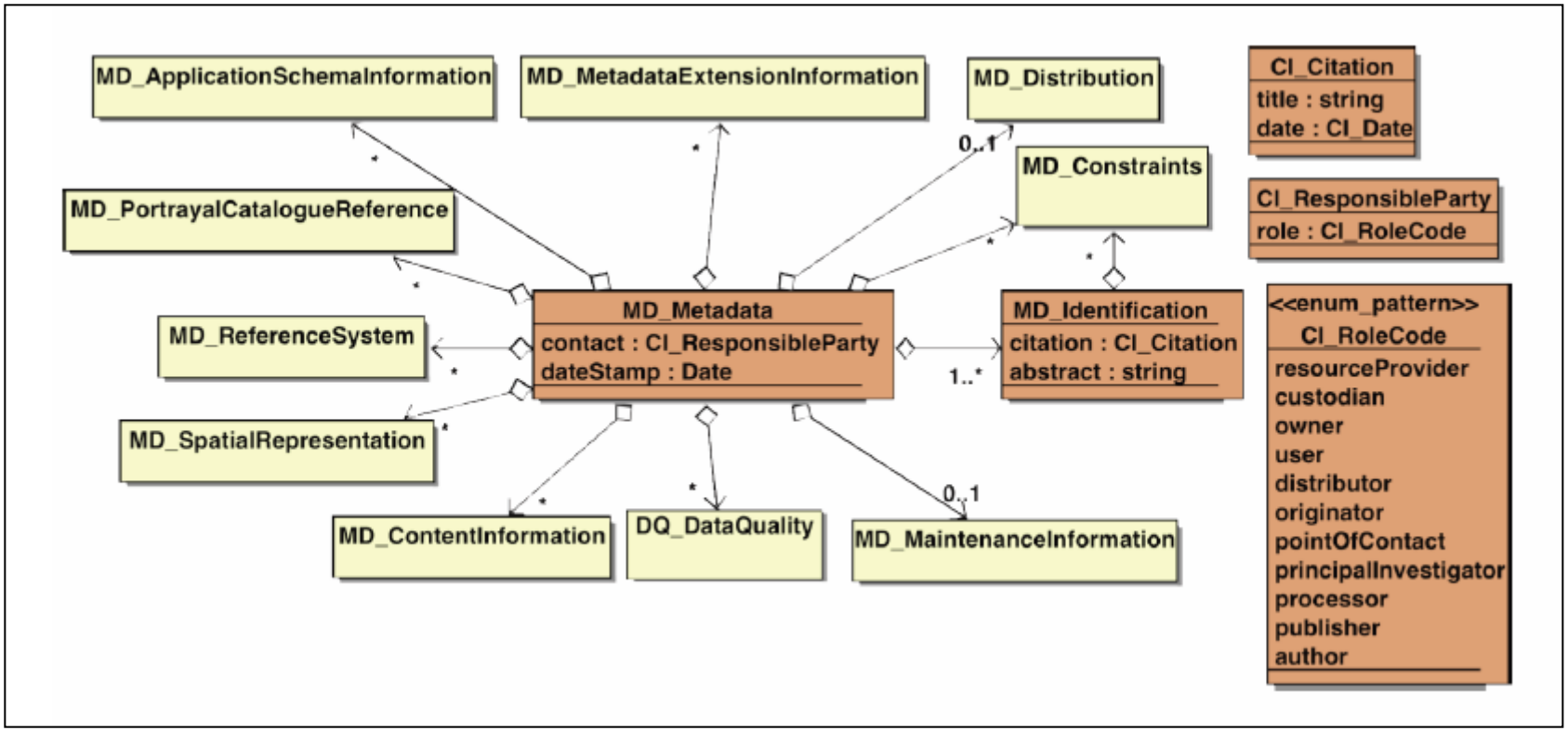
ISO/TC 211 aims to establish a structured set of standards for information concerning objects or phenomena that are directly or indirectly associated with a location relative to the Earth.



ISO 19115: Metadata for geographic information

International Organization for Standardization

ISO 19115: Metadata for geographic information



From :C. Plumejeaud , et al (2011): Opérationnalisation d'un profil ISO 19115 pour des métadonnées socio-économiques

The ISO 19115 Standard **defines an extensive set of metadata elements**; (typically only a subset of the full number of elements is used).

The standard offers the possibility to adapt the level of detail and richness of information needs and only information relating to the identification of the data set and the person responsible for the metadata record are required.

ISO 19115: the 5 most frequently used sections

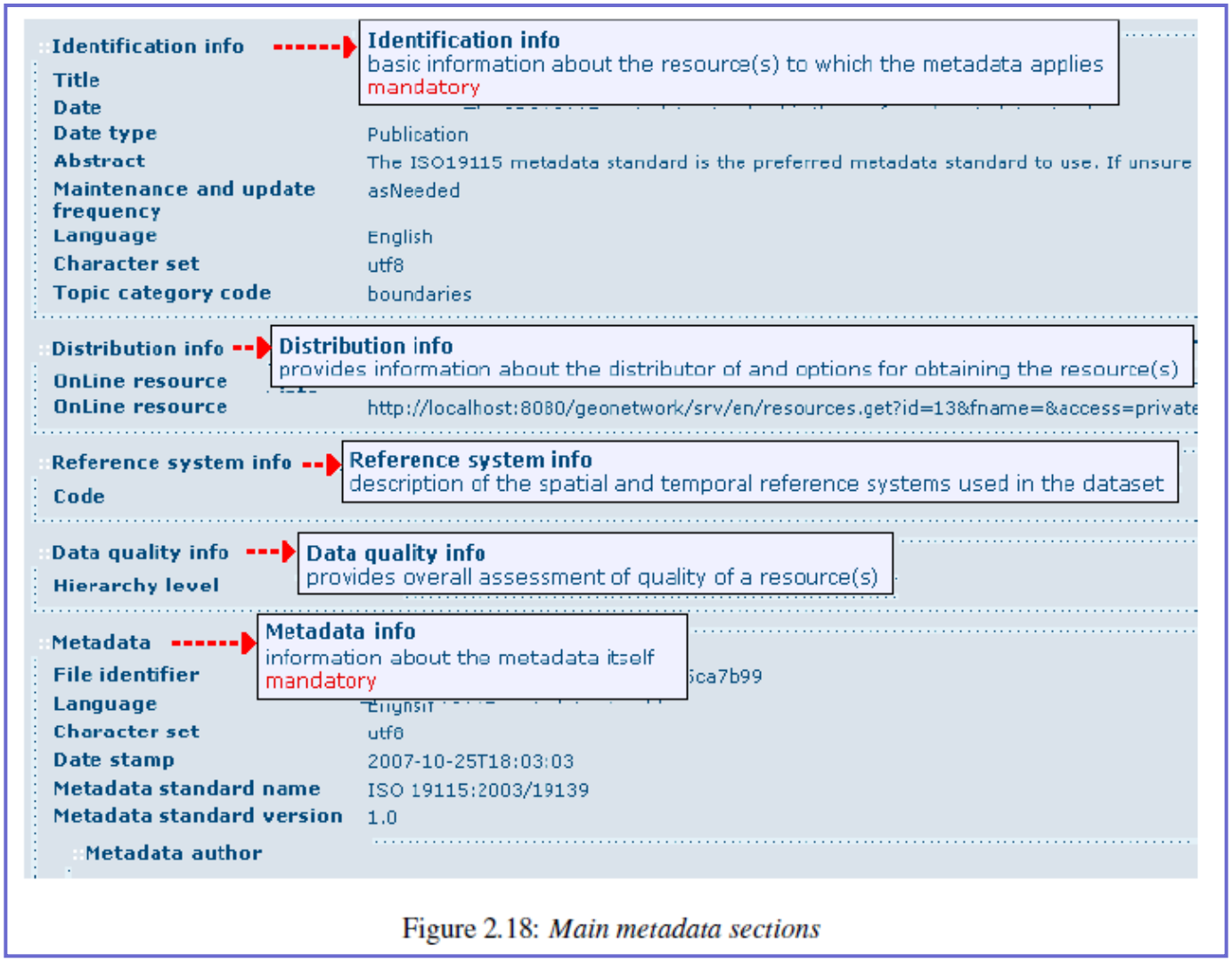
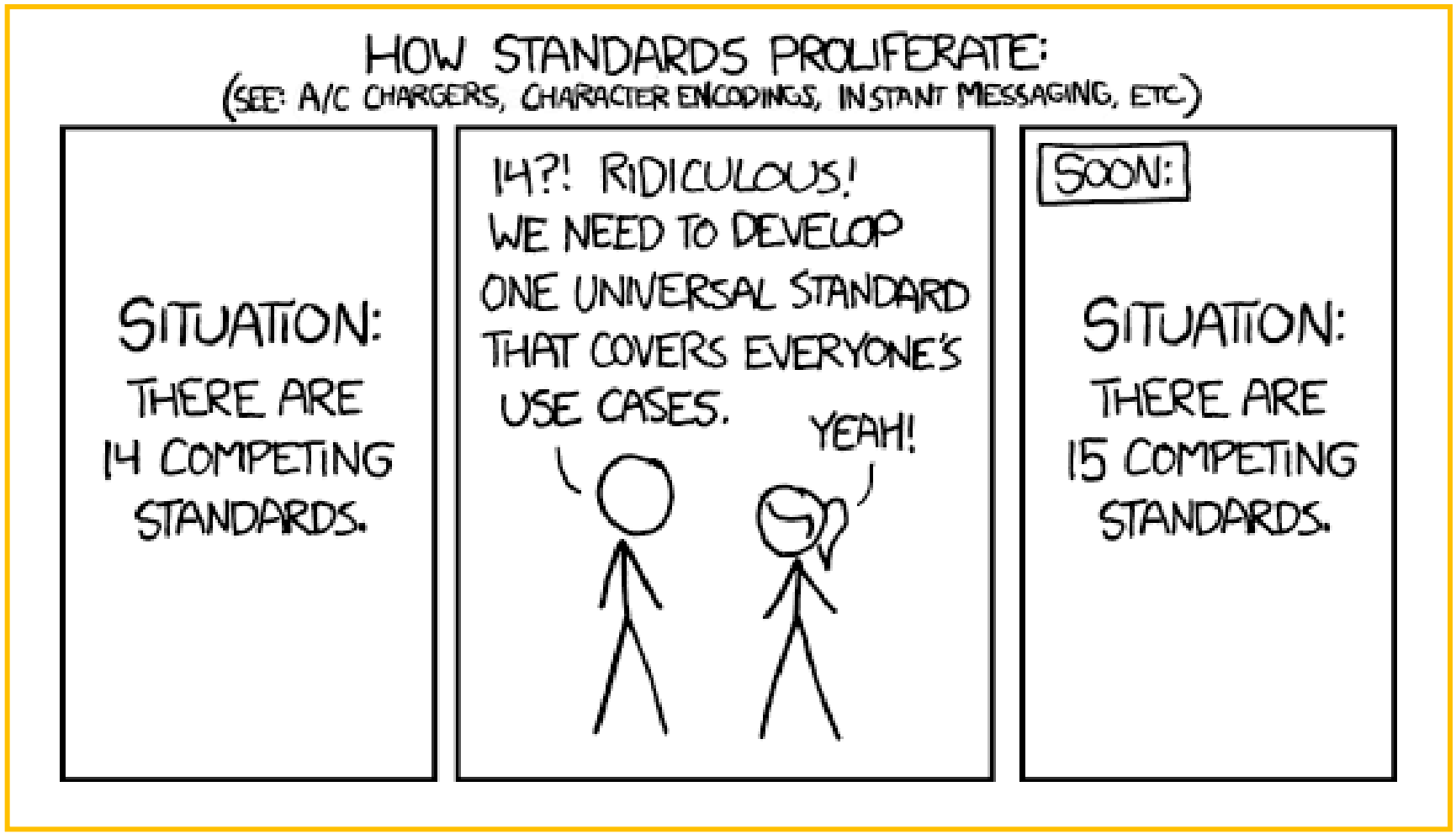


Figure 2.18: *Main metadata sections*


HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)
SITUATION: THERE ARE 14 COMPETING STANDARDS.
14?! RIDICULOUS! WE NEED TO DEVELOP ONE UNIVERSAL STANDARD THAT COVERS EVERYONE'S USE CASES.
YEAH!
SOON:
SITUATION: THERE ARE 15 COMPETING STANDARDS.

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Merci

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