



WIS Discovery Metadata

ISO Standards and WMO Core Metadata Profile

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About Myself

- Lead on WIS Metadata Development
 - Lead, TT-MDI (Task Team on Metadata Implementation)
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This talk

- What is *metadata*
- ISO Standards of Geographical Metadata
- WMO Core Metadata Profile



What's *metadata*?

- No good to use the word *metadata* alone
- Too wide meaning

What's *meta*?

- Greek μετά
 - *about, beyond, etc.*
- Aristotle: *Metaphysica*
 - metaphysics : physics
= conceptual : real
- Meta- x = x about x
 - Meta-discussion
 - Meta-programming
 - Metadata

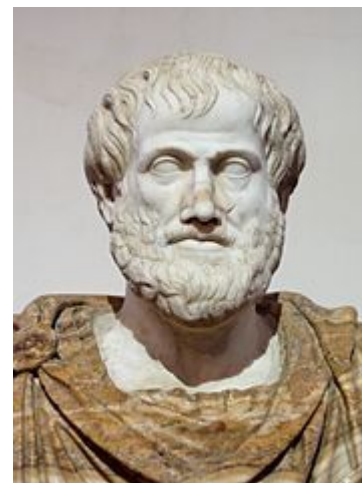


Image from Wikimedia Commons

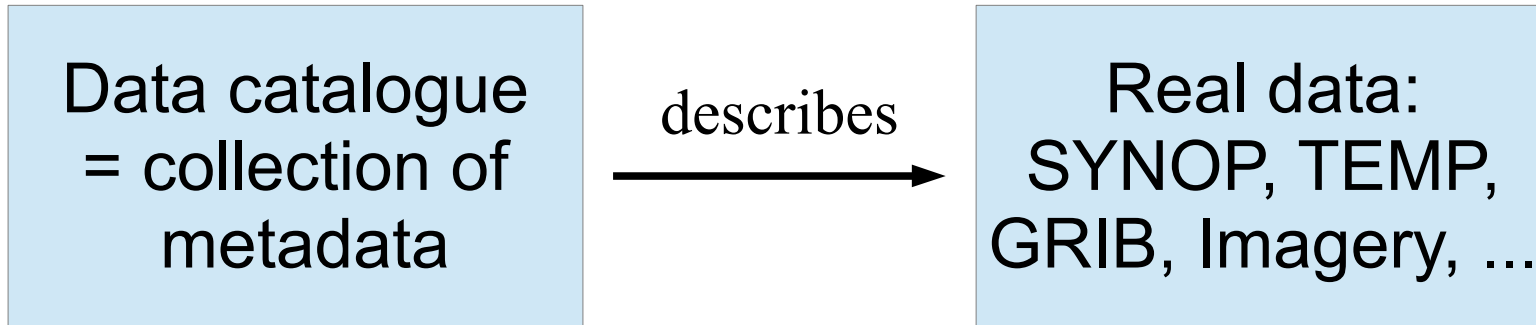
Metadata = data about data

- All sorts of catalogues and descriptions
- WIS
 - Catalogue of distributed data
- WIGOS
 - Catalogue of stations, satellites, instruments, ...
- Computer files
 - Size, owner, permission, ...



Don't forget to ask
“What metadata?”

WIS Discovery Metadata



- Analogy to library

Book catalogue
= collection of metadata

Real books



describes



Images from Wikimedia Commons

Typical book card

- **Title:** An Introduction to Dynamic Meteorology, 3rd Edition
- **Author:** James R. Holton
- **Subject:** Atmospheric Dynamics
- **Published:** April 12, 1992
- **Identifier:** ISBN 978-0123543554
- **Language:** English
- **Shelf:** 1st floor, 551.51-H838i-3

What more for data catalogue?

- Location: station or lat-long ← *geographical*
- Vertical: height or pressure
- Time (maybe range and forecast origin)
- WMO Code Form
- Contact details
- Link to data
- Free-text description
- ...



Now we need
standardization

ISO Standards of Geographical Metadata

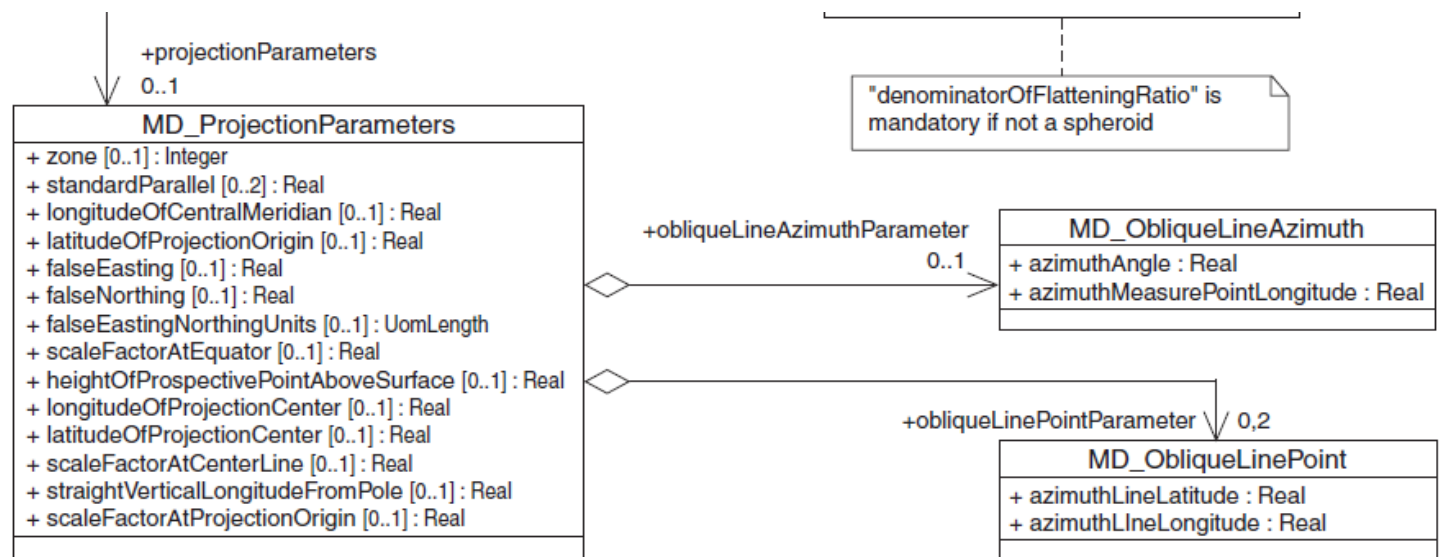


Prehistory

- Each community had their own initiative
 - NASA DIF (1987)
- Interdisciplinary coordination nationwides
 - CSDGM by U.S. FGDC (1992)
 - ANZLIC guideline (1996)
- International coordination
 - ISO TC/211: 1994–
 - Geographic information / Geomatics
 - Developing ISO 19100 series

ISO 19115:2003 – Metadata

- First international standard of geographic metadata
- Written in UML (Unified Modelling Language)
 - Defines elements and structure only
 - Actual file format unspecified



ISO/TS 19139:2007 – Metadata – XML schema implementation

- TS: Technical Specification
- Defines XML version of ISO 19115 structure
 - XML: Extensible Markup Language
 - XML Schema: a language to define XML tag/attribute/text structure
- Refers to ISO 19136 (GML) for some elements

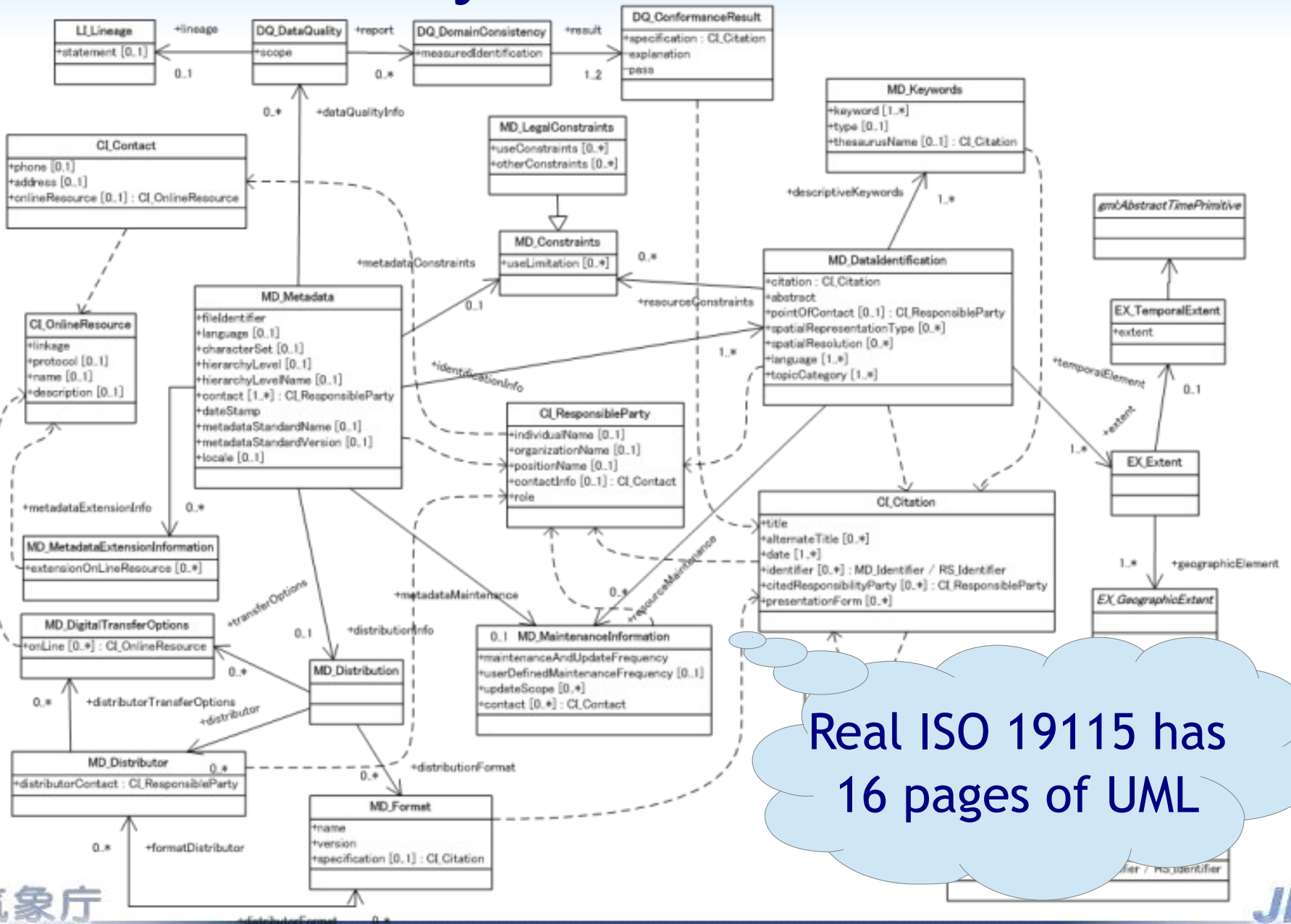
XML looks like this

```
<gmd:MD_Metadata>  
<gmd:fileIdentifier>  
<gco:CharacterString>urn:x-  
wmo:md:jp.go.jma.wis.dcp-  
wdcgg::p.HHE648N00.NO2.ZAMG</gco:Chara  
cterString>  
</gmd:fileIdentifier>  
<gmd:language>  
<gmd:MD_LanguageCode codeListValue="en"  
... (continues) ...
```

The diagram illustrates XML annotations with three colored boxes and arrows:

- A yellow box labeled "element" has an arrow pointing to the opening tag `<gmd:MD_Metadata>`.
- A blue box labeled "text content" has an arrow pointing to the text `urn:x-wmo:md:jp.go.jma.wis.dcp-wdcgg::p.HHE648N00.NO2.ZAMG` inside the `<gco:CharacterString>` tag.
- A magenta box labeled "attribute" has an arrow pointing to the attribute `codeListValue="en"` in the `<gmd:MD_LanguageCode>` tag.

Summary of ISO structure

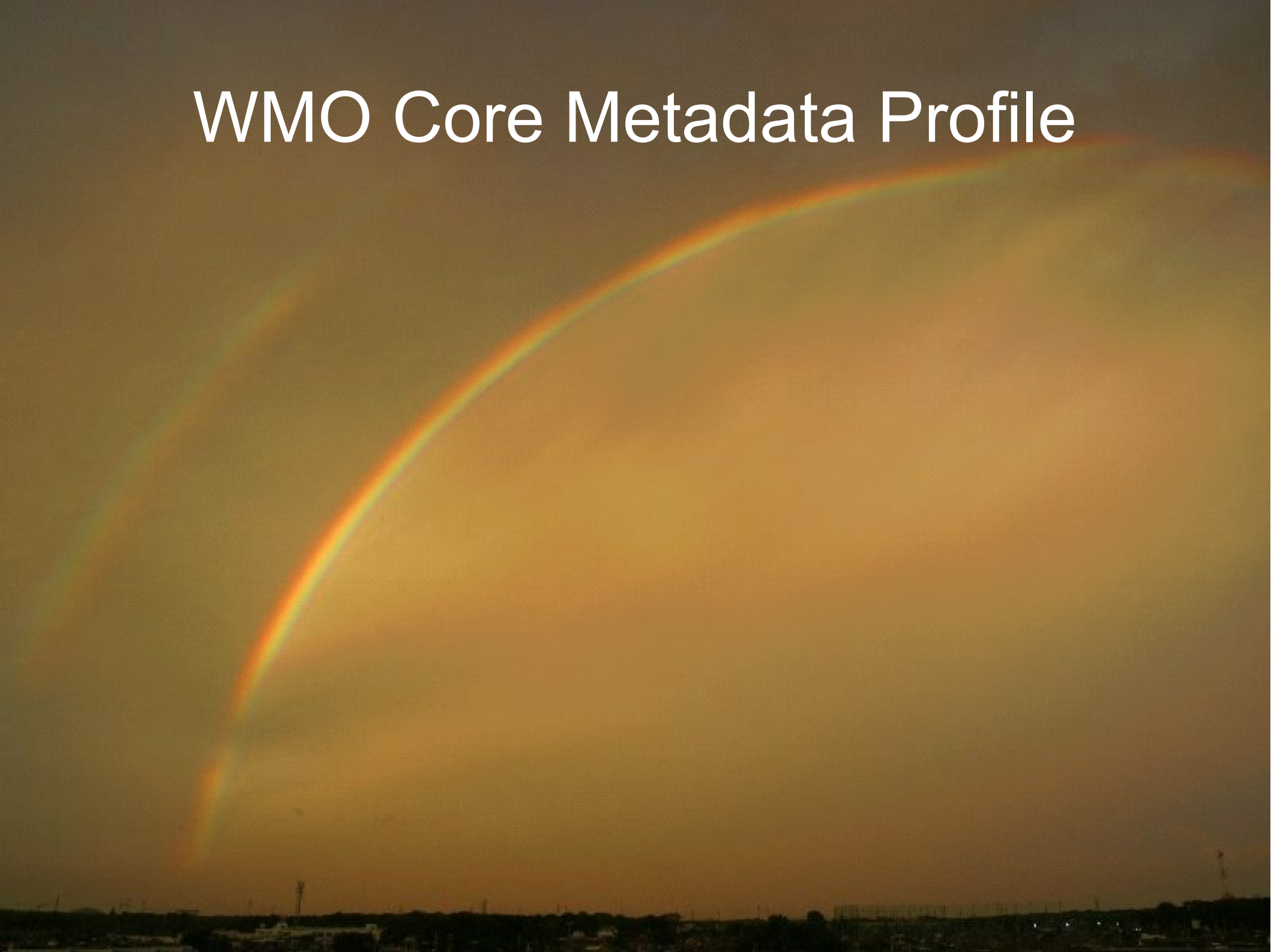


Real ISO 19115 has
16 pages of UML

Looks too complicated?

- ISO 19139 contains
 - 620 elements
 - 255 are complex-typed (contain other elements)
 - 26 attributes
- Only a few are mandatory
 - The rest are optional
 - Profile: limited subset by user community

WMO Core Metadata Profile

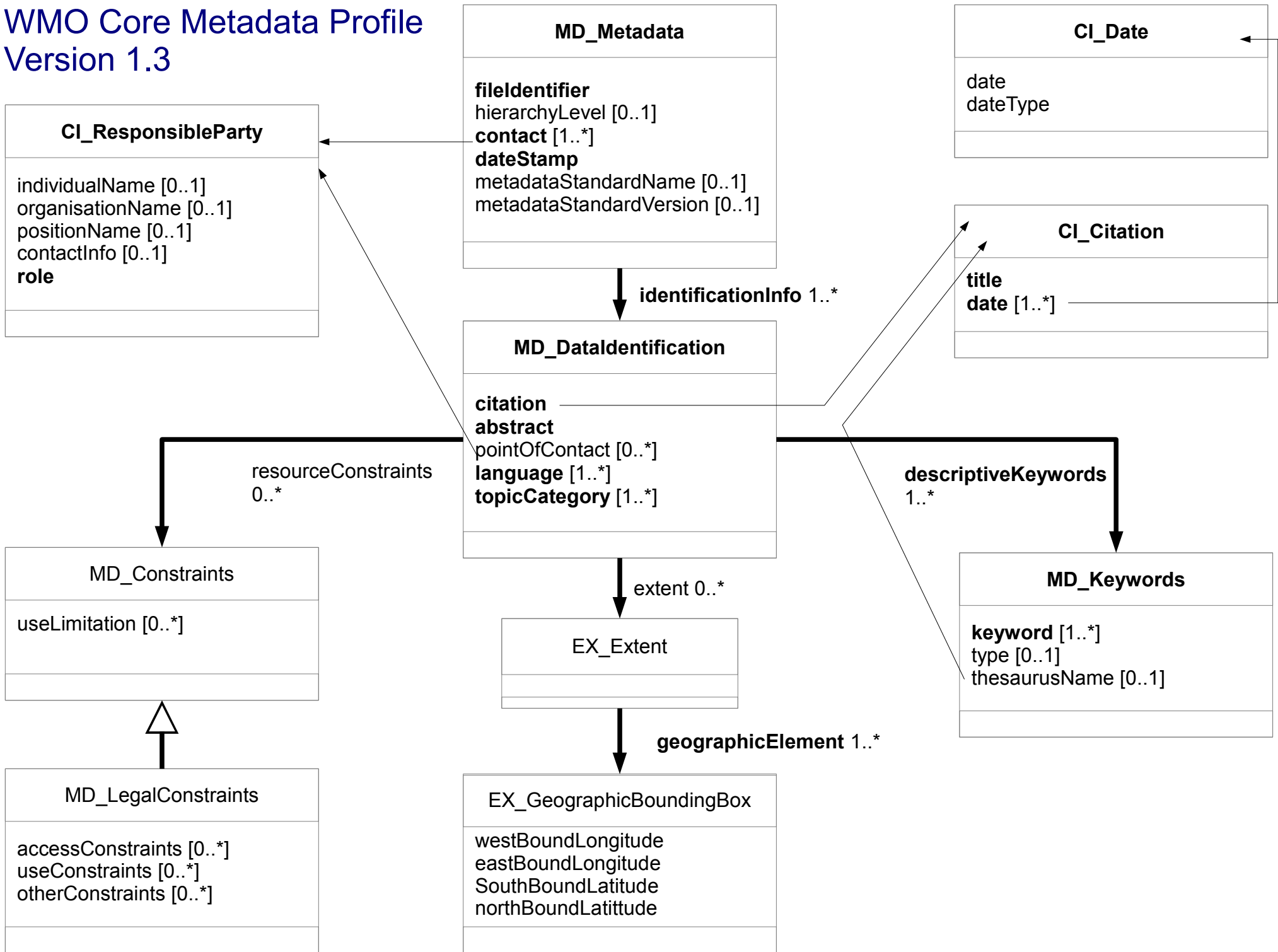


History of WIS metadata standard

- 2002: ET-IDM
 - IDM = Integrated Data Management
 - UML-based customization
- 2005: ET-MI
 - MI = Metadata Implementation
 - ISO-19139 adopted
 - Conclusion: no good to extend 19139
- 2010: IPET-MDI
 - Refinement of really necessary elements

– 2013.2 WMO Core Profile version 1.3

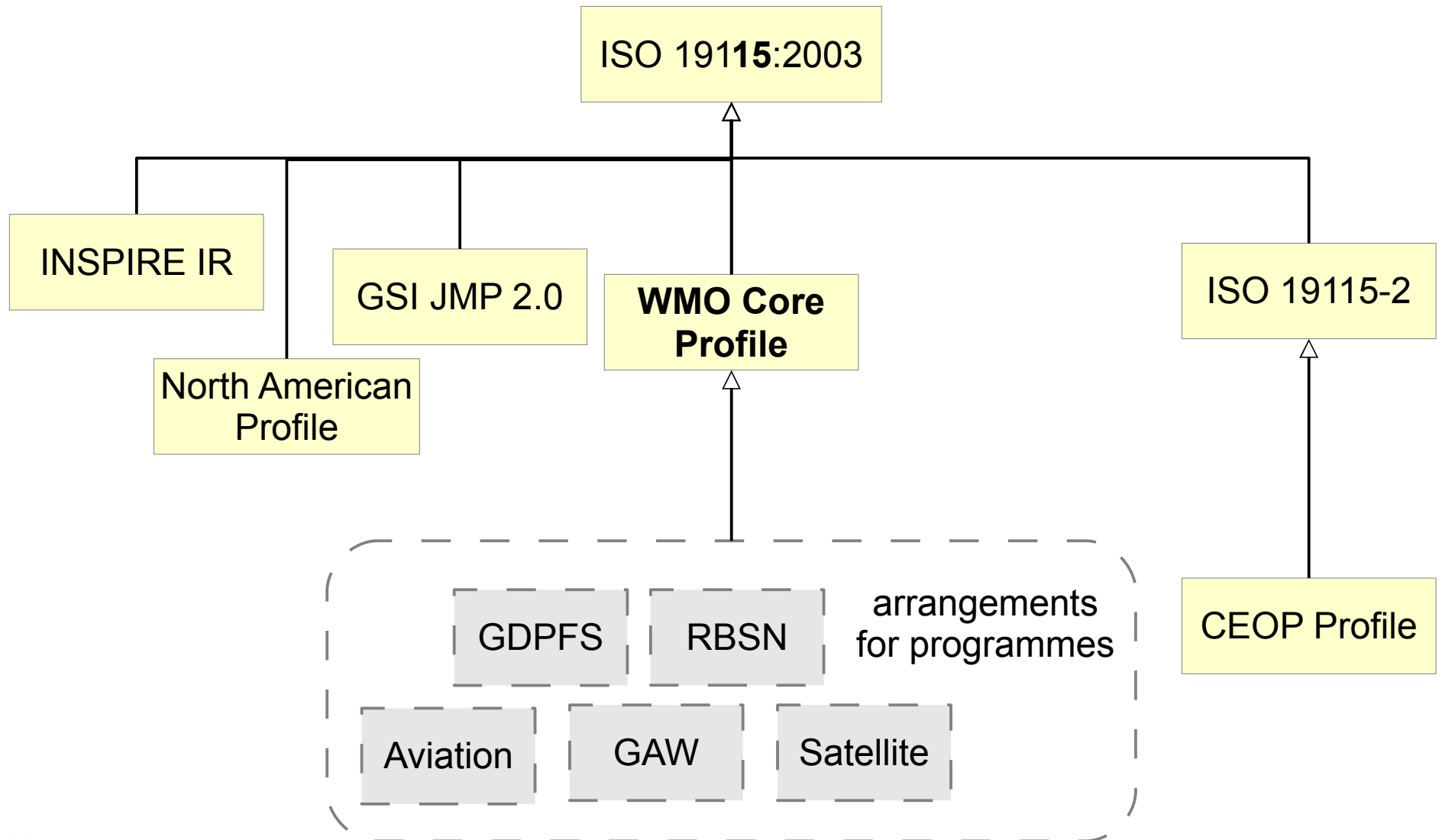
WMO Core Metadata Profile Version 1.3



Often mentioned elements

- MD_Metadata root element
- MD_Dataidentification description of data
- MD_Distribution format & link
- MD_Constraints use limitation etc.
- CI_Citation similar to book card
- CI_ResponsibleParty contact point
- EX_Extent location, level, time
- EX_GeographicBoundingBox lat/long ranges

Why core profile?



Now IPET-MDRD is doing

- “Automate” the standard
 - Past WMO Core Profiles were a Word doc
 - Ver1.3: You can check online
- Care for each WMO programme
 - How to document special cases
- Prepare for new ISO 19115-1:2012
- Care for you

Summary

- Meaning of *metadata* depends on context
- *WIS Discovery Metadata* is catalogue of data
- Uses ISO geographical metadata standard
- WMO has its own customization:
 - WMO Core Metadata Profile