Required UMM-Common Metadata Concepts in CMR Metadata Collections

Interim Collection Comparison Report for Big Earth Data Initiative

Metadata Source: CMR Metadata Collections

Metadata Dialect: ISO 19115-2

Evaluation Target: UMM-Common Required Recommendation

The Unified Metadata Model Common (UMM-Common) specification describes documentation concepts that are common in existing NASA metadata collections. Some concepts described in the UMM-Common profile are specified as required for NASA earth science metadata implementations.

Metadata Collection

- Alaska Satellite Facility (ASF)
- Crustal Dynamics Data Information System (CDDIS)
- Global Hydrology Resource Center (GHRC)
- Goddard Space Flight Center (GSFC) Simple, Scalable, Script-based Science Processing Archive (S4PA)
- Level 1 and Atmosphere Archive and Distribution System (LAADS)
- Land, Atmosphere Near real-time Capability for EOS (LANCEMODIS)
- Langley Research Center (LARC)
- Langley Research Center (LARC_ASDC) Atmospheric Science Data Center

- Land Process DAAC - EOS Core System (LPDAAC_ECS)
- National Snow and Ice Data Center Version 0 (NSIDCV0)
- National Snow and Ice Data Center EOS Core System (NSIDC_ECS)
- Ocean Biology Processing Group (OBPG)
- Oak Ridge National Laboratory (ORNL)
- Physical Oceanography DAAC (PODAAC)
- Socioeconomic Data and Applications Center (SEDAC)
- U.S. Geological Survey Earth Resources Observation Systems (USGS_EROS)

Analysis

We examined 4180 metadata records from 17 collections extracted from the Common Metadata Repository (CMR) during October 2015. The table below provides the average number of occurrences of Required UMM-Common elements in each of these collections. A value of 1 or more typically (although not necessarily) indicates that the element is included one or more times in each record in a collection. A value < 1.0 is typically the percentage of records in a collection that include the metadata element. Cells with pink backgrounds indicate values of 0, meaning element is completely missing from the collection.

Overall CMR metadata collections are doing a very good job of documenting Required UMM-Common concepts. The pink shaded cells near the bottom of the table indicate required elements that are missing for some of the collection.

Table 1: Collection Comparison of UMM-Common Required Elements

Element Name	Path Elements	ASF	CDDIS	GES_DISC	GHRC	GSFC S4PA	LAADS	LANCE AMSR2	LANCE MODIS	LARC	LARC_ASDC	LPDAAC_ECS	NSIDC_ECS	OB_DAAC	OMINRT	ORNL_DAAC	PODAAC	USGS_EROS	Count
Metadata Modified Date	gmd:dateStamp/gco:DateTime	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	17
Resource Title	gmd:identificationInfo/gmd:citation/gmd:title	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	17
Abstract	gmd:identificationInfo/gmd:abstract	1.00	1.00	1.00	1.00	.96	.68	1.00	.94	1.00	1.00	1.00	1.00	1.00	.50	1.00	.99	1.00	17
Keyword Type Code	gmd:identificationInfo/gmd:descriptiveKeywords/gmd:type/gmd:MD_KeywordTypeCode	4.50	3.68	6.00	6.97	5.54	5.00	7.00	4.72	4.46	4.00	4.00	4.67	5.00	3.00	4.97	5.00	4.00	17
Temporal Extent Begin	gmd:identificationInfo/gmd:extent/gmd:temporalElement/gmd:extent/gml:TimePeriod/gml:beginPosition	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.99	1.00	1.00	1.00	1.00	1.00	1.00	17
Instrument Short Name	gmi:acquisitionInformation/gmi:instrument/gmi:identifier/gmd:code	1.00	8.64	1.11	1.93	.68	1.00	1.00	1.00	1.34	5.65	1.11	1.86	1.00	1.00	2.60	2.53	2.00	17
Platform Short Name	gmi:acquisitionInformation/gmi:platform/gmi:identifier/gmd:code	1.00	8.64	1.00	1.28	.90	1.00	1.00	1.00	1.33	3.16	1.11	1.59	1.00	1.00	1.37	2.09	2.00	17
Science Keyword	gmd:identificationInfo/gmd:descriptiveKeywords/gmd:keyword	115.43	19.25	7.03	10.12	21.04	18.60	9.80	9.35	6.36	10.81	5.21	10.32	5.00	3.00	11.62	7.79	6.82	17

Spatial Extent	gmd:identificationInfo/gmd:extent/gmd:geographicElement/gmd:westBoundLongitude/gco:Decimal	1.00	.96	2.00	1.00	.82	2.00	.80	1.66	1.50	.53	1.00	1.04	1.00		1.00	1.02	1.00	16
Spatial Extent	gmd:identificationInfo/gmd:extent/gmd:geographicElement/gmd:eastBoundLongitude/gco:Decimal	1.00	.96	2.00	1.00	.82	2.00	.80	1.66	1.50	.53	1.00	1.04	1.00		1.00	1.02	1.00	16
Spatial Extent	gmd:identificationInfo/gmd:extent/gmd:geographicElement/gmd:southBoundLatitude/gco:Decimal	1.00	.96	2.00	1.00	.82	2.00	.80	1.66	1.50	.53	1.00	1.04	1.00		1.00	1.02	1.00	16
Spatial Extent	gmd:identificationInfo/gmd:extent/gmd:geographicElement/gmd:northBoundLatitude/gco:Decimal	1.00	.96	2.00	1.00	.82	2.00	.80	1.66	1.50	.53	1.00	1.04	1.00		1.00	1.02	1.00	16
Related URL	gmd:distributionInfo/gmd:distributor/gmd:distributorTransferOptions/gmd:onLine/gmd:linkage/gmd:URL	1.00	1.00	7.40	6.51	7.21	3.21	6.20	3.21	3.48	.62	7.05	2.29	5.41		2.16	8.01	.45	16
Resource Contact	gmd:identificationInfo/gmd:pointOfContact/gmd:organisationName	1.00	1.00		1.00	1.00		1.00	.34	.45	1.00	1.00	.93	1.00	1.00	1.00	1.00	1.00	15
Resource Contact Role	gmd:identificationInfo/gmd:pointOfContact/gmd:role/gmd:CI_RoleCode	1.00	1.00		1.00	1.63		1.00	.34	.45	1.00	1.00	.93	1.00	1.00	1.00	1.00	1.00	15
Distribution Contact	gmd:distributionInfo/gmd:distributor/gmd:distributorContact/gmd:organisationName		1.00	1.00					.66	1.00	2.00	1.00	.99	1.00	1.00		1.00	1.00	11
Temporal Extent End	gmd:identificationInfo/gmd:extent/gmd:temporalElement/gmd:extent/gml:TimePeriod/gml:endPosition	.43			.94	.38				.05	1.00	.12	.58	.67		1.00	.43		10
Processor	gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmd:processor/gmd:organisationName	1.00				.57	1.00		.69	.45		1.00	1.00			1.00	1.00	1.00	10
TwoDCoordinateSystem	gmd:identificationInfo/gmd:extent/gmd:geographicElement/gmd:geographicIdentifier/gmd:code		.96			.09				.27	.10	1.25	1.25					1.00	7
Browse URL	gmd:identificationInfo/gmd:graphicOverview/gmd:fileName/gmx:FileName/@src				.58			1.00									.11		3