

Additional Attributes in NASA Climate Data Initiative Metadata

[AdditionalAttributeFigure2.png](#)

Metadata Source: NASA Climate Data Initiative

Metadata Dialect: ECHO10

Evaluation Target: Additional Attributes

ECHO additional attributes, also known as Product-Specific Attributes (PSAs), are parameters that are not included in the ECHO metadata standard which further describe the data in each granule within a collection.

ECHO includes a comprehensive model of information related to additional attributes (see list below). As these data are shared across disciplines and users, it is critical that the additional attributes are completely described.

This Quick Evaluation shows the distribution of additional Attribute information in collection metadata for NASA Climate Data Initiative datasets from six DAAC's. The units are elements / record, so a value of 9.48 for LPDAAC means that the LPDAAC metadata records include an average of 9.48 additional attribute names / record. If all of these additional attributes were completely described, the entire column for LPDAAC would have the same value (9.48). We can see that this is not true. In fact, we see a steep falloff in content after Data Type in each collection.

Additional Attributes Properties:

Name – Unique name of the additional attribute.

DataType – Data type of the additional attribute, chosen from the supported list of types.

Description – A textual description of the attribute to help end users understand the purpose and data represented by the attribute.

MeasurementResolution – Identifies the smallest unit increment to which the parameter value is measured.

ParameterRangeBegin – Minimum value of all attribute values that will be provided by the collection or granules.

ParameterRangeEnd – Maximum value of all attribute values that will be provided by the collection or granules.

ParameterUnitsOfMeasure – Unit of measure for parameter (e.g. AVHRR: unit of geophysical parameter-units of geophysical parameter.)

ParameterValueAccuracy – Estimate of the accuracy of the assignment of attribute value. This can be specified in percent or the unit with which the parameter is measured.

ValueAccuracyExplanation – Defines the method used for determining the parameter value accuracy.

AdditionalAttributes in the CMR

Number of Records		161	25	38	103	23	10	19	340	130	6	154	406	606	1	285	5488	223	784	132	5	1216	603	202	11	130
Element	Element Path	ASF	AU_A ADC	CD DIS	ESAT	EU_ME TS AT	GES_ DI SC	IS RO	JA_XA	LA_A DS	LAN_CEA MS R2	LAN_CE MO DIS	LA_RC	LA_RC_A SDC	LM_FI RMS	LPD_AA C_E CS	NO_AA_N CEI	NS_ID C_ECS	NSI_D C V0	OB_D A AC	OMI_N RT	OR_NL_D AAC	PO_D A AC	SE_D AC	USGS_E ROS	USGS_LTA
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:dataType/eos:EOS_AdditionalAttributeDataTypeCode		2.29		2.20	2.00	9.28	3.00	3.92	6.38		1.08	1.07		2.00	5.66	2.58	.68	3.18						1.09	3.00
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description		2.29		2.20	2.00	9.28	3.00	3.92	6.38		1.08	1.07		2.00	5.66	2.58	.68	3.18						1.09	3.00
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:identifier/gmd:code		2.29		2.20	2.00	9.25	3.00	3.92	2.25		.13			2.00	.38	2.58		3.18							3.00
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:name		2.29		2.20	2.00	9.28	3.00	3.92	6.38		1.08	1.07		2.00	5.66	2.58	.68	3.18						1.09	3.00
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:type/eos:EOS_AdditionalAttributeTypeCode		2.29		2.20	2.00	9.28	3.00	3.92	6.38		1.08	1.07		2.00	5.66	2.58	.68	3.18						1.09	3.00
	gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:value		2.28		2.20	2.00	9.25	3.00	3.92	2.25		.13	.07		2.00	.38	2.58		2.24							3.00
	gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:name	2.00											.63			.12		1.08							5.27	
	gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:type/eos:EOS_AdditionalAttributeTypeCode	2.00											.63			.12		1.08							5.27	

gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:value	2.00								.63		.09	.27						
gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterRangeBegin							.72		.49	.02	.07	.13						
gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterRangeEnd							.72		.49	.03	.07	.13						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference											1.02	.74						
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:name											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:type											.70	.04					2.00	
gmd:dataQualityInfo/gmd:report/gmd:result/gmd:value/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:type											.70	.04					2.00	
gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:dataType/eos:EOS_AdditionalAttributeDataTypeCode									.10		.03	1.08					5.27	
gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description									.10		.03	1.08					5.27	
gmi:acquisitionInformation/gmi:instrument/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterUnitsOfMeasure									.10			.54						
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:dataType/eos:EOS_AdditionalAttributeDataTypeCode							.70		.53	.33	1.20	.55					2.00	
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:description							.70		.53	.33	1.20	.55					2.00	
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:name							.70		.53	.82	1.20	1.29					2.00	
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterUnitsOfMeasure							.70		.53	.33	1.20	.55					2.00	
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:type/eos:EOS_AdditionalAttributeTypeCode							.70		.53	.82	1.20	1.29					2.00	
gmi:acquisitionInformation/gmi:platform/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:value							.70		.53	.82	1.20	1.29					2.00	
gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:measurementResolution												.13						
gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterUnitsOfMeasure												.13						
gmd:contentInfo/gmd:dimension/gmd:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference/eos:parameterValueAccuracy												.13						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference												.04						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference												.19						
gmd:dataQualityInfo/gmd:lineage/gmd:processStep/gmi:processingInformation/eos:otherProperty/gco:Record/eos:AdditionalAttributes/eos:AdditionalAttribute/eos:reference												.19						

