

0	Version Changes	<i>A comparison of the attribute and definitions in different ACDD versions. (Italics indicate substantial change; Gray fill = SUGGESTED priority.)</i>			
1	Version 1.1 Attributes	Version 1.1 Definitions	Version 1.3 Attributes	Version 1.3 Definitions	Priority
2	SUMMARY ATTRIBUTES				
3	title	A short description of the dataset.	title	A short phrase or sentence describing the dataset. In many discovery systems, the title will be displayed in the results list from a search, and therefore should be human readable and reasonable to display in a list of such names. This attribute is recommended by the NetCDF Users Guide (NUG) and the CF conventions.	HIGHLY RECOMMENDED
4	summary	A paragraph describing the dataset.	summary	A paragraph describing the dataset, analogous to an abstract for a paper.	HIGHLY RECOMMENDED
5	keywords	A comma separated list of key words and phrases.	keywords	A comma-separated list of key words and/or phrases. Keywords may be common words or phrases, terms from a controlled vocabulary (GCMD is often used), or URIs for terms from a controlled vocabulary (see also "keywords_vocabulary" attribute).	HIGHLY RECOMMENDED
6	keywords_vocabulary	If you are following a guideline for the words/phrases in your "keywords" attribute, put the name of that guideline here.	keywords_vocabulary	If you are using a controlled vocabulary for the words/phrases in your "keywords" attribute, this is the unique name or identifier of the vocabulary from which keywords are taken. If more than one keyword vocabulary is used, each may be presented with a prefix (e.g., "CF:NetCDF COARDS Climate and Forecast Standard Names") and a following comma, so that keywords may optionally be prefixed with the controlled vocabulary key.	SUGGESTED (was RECOMMENDED)
7	<i>(new to ACDD in 1.3)</i>		Conventions	A comma-separated list of the conventions that are followed by the dataset. For files that follow this version of ACDD, include the string 'ACDD-1.3'. (This attribute is defined in NUG 1.7.)	HIGHLY RECOMMENDED
8	id	The combination of the "naming authority" and the "id" should be a globally unique identifier for the dataset.	id	An identifier for the data set, provided by and unique within its naming authority. The combination of the "naming authority" and the "id" should be globally unique, but the id can be globally unique by itself also. IDs can be URLs, URNs, DOIs, meaningful text strings, a local key, or any other unique string of characters. The id should not include white space characters.	RECOMMENDED
9	naming_authority	The combination of the "naming authority" and the "id" should be a globally unique identifier for the dataset.	naming_authority	The organization that provides the initial id (see above) for the dataset. The naming authority should be uniquely specified by this attribute. We recommend using reverse-DNS naming for the naming authority; URIs are also acceptable. Example: 'edu.ucar.unidata'.	RECOMMENDED
10	cdm_data_type	The THREDDS data type appropriate for this dataset.	cdm_data_type	The data type, as derived from Unidata's Common Data Model Scientific Data types and understood by THREDDS. (This is a THREDDS "dataType", and is different from the CF NetCDF attribute 'featureType', which indicates a Discrete Sampling Geometry file in CF.)	SUGGESTED (was RECOMMENDED)
11	history	Provides an audit trail for modifications to the original data.	history	Provides an audit trail for modifications to the original data. This attribute is also in the NetCDF Users Guide: 'This is a character array with a line for each invocation of a program that has modified the dataset. Well-behaved generic netCDF applications should append a line containing: date, time of day, user name, program name and command arguments.' To include a more complete description you can append a reference to an ISO Lineage entity; see NOAA EDM ISO Lineage guidance.	RECOMMENDED
12	<i>(new in 1.3)</i>		source	The method of production of the original data. If it was model-generated, source should name the model and its version. If it is observational, source should characterize it. This attribute is defined in the CF Conventions. Examples: 'temperature from CTD #1234'; 'world model v.0.1'.	RECOMMENDED
13	<i>(new in 1.3)</i>		platform	Name of the platform(s) that supported the sensor data used to create this data set or product. Platforms can be of any type, including satellite, ship, station, aircraft or other. Indicate controlled vocabulary used in platform_vocabulary.	SUGGESTED
14	<i>(new in 1.3)</i>		platform_vocabulary	Controlled vocabulary for the names used in the "platform" attribute.	SUGGESTED
15	<i>(new in 1.3)</i>		instrument	Name of the contributing instrument(s) or sensor(s) used to create this data set or product. Indicate controlled vocabulary used in instrument_vocabulary.	SUGGESTED

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16	<i>(new in 1.3)</i>		instrument_vocabulary	Controlled vocabulary for the names used in the "instrument" attribute.	SUGGESTED
17	processing_level	A textual description of the processing (or quality control) level of the data.	processing_level	A textual description of the processing (or quality control) level of the data.	RECOMMENDED
18	comment	Miscellaneous information about the data.	comment	Miscellaneous information about the data, not captured elsewhere. This attribute is defined in the CF Conventions.	RECOMMENDED
19	standard_name_vocabulary	The name of the controlled vocabulary from which variable standard names are taken.	standard_name_vocabulary	The name and version of the controlled vocabulary from which variable standard names are taken. (Values for any standard_name attribute must come from the CF Standard Names vocabulary for the data file or product to comply with CF.) Example: 'CF Standard Name Table v27'.	RECOMMENDED
20	acknowledgement	A place to acknowledge various type of support for the project that produced this data.	acknowledgement	A place to acknowledge various types of support for the project that produced this data.	RECOMMENDED
21	license	Describe the restrictions to data access and distribution.	license	Provide the URL to a standard or specific license, enter "Freely Distributed" or "None", or describe any restrictions to data access and distribution in free text.	RECOMMENDED
22	<i>new in 1.3; was in text only as 'Metadata_Link'</i>		metadata_link	A URL that gives the location of more complete metadata. A persistent URL is recommended for this attribute.	SUGGESTED
23	<i>(new to ACDD in 1.3)</i>		references	Published or web-based references that describe the data or methods used to produce it. Recommend URIs (such as a URL or DOI) for papers or other references. This attribute is defined in the CF conventions.	SUGGESTED
24	CREATOR, PUBLISHER, CONTRIBUTOR, INSTITUTION, PROJECT				
25	creator_name	The data creator's name, URL, and email. The "institution" attribute will be used if the "creator_name" attribute does not exist.	creator_name	The name of the person (or other creator type specified by the creator_type attribute) principally responsible for creating this data.	RECOMMENDED
26	creator_email	The data creator's name, URL, and email. The "institution" attribute will be used if the "creator_name" attribute does not exist.	creator_email	The email address of the person (or other creator type specified by the creator_type attribute) principally responsible for creating this data.	RECOMMENDED
27	creator_url	The data creator's name, URL, and email. The "institution" attribute will be used if the "creator_name" attribute does not exist.	creator_url	The URL of the of the person (or other creator type specified by the creator_type attribute) principally responsible for creating this data.	RECOMMENDED
28	<i>(new in 1.3.1)</i>		creator_type	Specifies type of creator with one of the following: 'person', 'group', 'institution', or 'position'. If this attribute is not specified, the creator is assumed to be a person.	SUGGESTED
29	<i>(new in 1.3)</i>		creator_institution	The institution of the creator; should uniquely identify the creator's institution. This attribute's value should be specified even if it matches the value of publisher_institution, or if creator_type is institution.	SUGGESTED
30	institution	The data creator's name, URL, and email. The "institution" attribute will be used if the "creator_name" attribute does not exist.	institution	The name of the institution principally responsible for originating this data. This attribute is recommended by the CF convention.	RECOMMENDED
31	project	The scientific project that produced the data	project	The name of the project(s) principally responsible for originating this data. Multiple projects can be separated by commas, as described under Attribute Content Guidelines. Examples: 'PATMOS-X', 'Extended Continental Shelf Project'.	RECOMMENDED
32	<i>(new in 1.3)</i>		program	The overarching program(s) of which the dataset is a part. A program consists of a set (or portfolio) of related and possibly interdependent projects that meet an overarching objective. Examples: 'GHRSSST', 'NOAA CDR', 'NASA EOS', 'JPSS', 'GOES-R'.	SUGGESTED
33	contributor_name	The name and role of any individuals or institutions that contributed to the creation of this data.	contributor_name	The name of any individuals, projects, or institutions that contributed to the creation of this data. May be presented as free text, or in a structured format compatible with conversion to nCML (e.g., insensitive to changes in whitespace, including end-of-line characters).	SUGGESTED

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34	contributor_role	The role of any individuals or institutions that contributed to the creation of this data.	contributor_role	The role of any individuals, projects, or institutions that contributed to the creation of this data. May be presented as free text, or in a structured format compatible with conversion to ncML (e.g., insensitive to changes in whitespace, including end-of-line characters). Multiple roles should be presented in the same order and number as the names in contributor_names.	SUGGESTED
35	publisher_name	The data publisher's name, URL, and email. The publisher may be an individual or an institution.	publisher_name	The name of the person (or other entity specified by the publisher_type attribute) responsible for publishing the data file or product to users, with its current metadata and format.	RECOMMENDED (was SUGGESTED)
36	publisher_email	The data publisher's name, URL, and email. The publisher may be an individual or an institution.	publisher_email	The email address of the person (or other entity specified by the publisher_type attribute) responsible for publishing the data file or product to users, with its current metadata and format.	RECOMMENDED (was SUGGESTED)
37	publisher_url	The data publisher's name, URL, and email. The publisher may be an individual or an institution.	publisher_url	The URL of the person (or other entity specified by the publisher_type attribute) responsible for publishing the data file or product to users, with its current metadata and format.	RECOMMENDED (was SUGGESTED)
38	<i>(new in 1.3.1)</i>		publisher_type	Specifies type of publisher with one of the following: 'person', 'group', 'institution', or 'position'. If this attribute is not specified, the publisher is assumed to be a person.	SUGGESTED
39	<i>(new in 1.3)</i>		publisher_institution	The institution that presented the data file or equivalent product to users; should uniquely identify the institution. If publisher_type is institution, this should have the same value as publisher_name.	SUGGESTED
40	GEOSPATIAL BOUNDS				
41	geospatial_bounds	Describes geospatial extent using any of the geometric objects (2D or 3D) supported by the Well-Known Text (WKT) format.	geospatial_bounds	<i>Describes the data's 2D or 3D geospatial extent in OGC's Well-Known Text (WKT) Geometry format (reference the OGC Simple Feature Access (SFA) specification). The meaning and order of values for each point's coordinates depends on the coordinate reference system (CRS). The ACDD default is 2D geometry in the EPSG:4326 coordinate reference system. The default may be overridden with geospatial_bounds_crs and geospatial_bounds_vertical_crs (see those attributes). EPSG:4326 coordinate values are latitude (decimal degrees_north) and longitude (decimal degrees_east), in that order. Longitude values in the default case are limited to the [-180, 180) range. Example: "POLYGON ((40.26 -111.29, 41.26 -111.29, 41.26 -110.29, 40.26 -110.29, 40.26 -111.29))".</i>	RECOMMENDED
	<i>(new in 1.3)</i>		geospatial_bounds_crs	<i>The coordinate reference system (CRS) of the point coordinates in the geospatial_bounds attribute. This CRS may be 2-dimensional or 3-dimensional, but together with geospatial_bounds_vertical_crs, if that attribute is supplied, must match the dimensionality, order, and meaning of point coordinate values in the geospatial_bounds attribute. If geospatial_bounds_vertical_crs is also present then this attribute must only specify a 2D CRS. EPSG CRSs are strongly recommended. If this attribute is not specified, the CRS is assumed to be EPSG:4326. Examples: "EPSG:4979" (the 3D WGS84 CRS), "EPSG:4047".</i>	RECOMMENDED
	<i>(new in 1.3)</i>		geospatial_bounds_vertical_crs	<i>The vertical coordinate reference system (CRS) for the Z axis of the point coordinates in the geospatial_bounds attribute. This attribute cannot be used if the CRS in geospatial_bounds_crs is 3-dimensional; to use this attribute, geospatial_bounds_crs must exist and specify a 2D CRS. EPSG CRSs are strongly recommended. There is no default for this attribute when not specified. Examples: "EPSG:5829" (instantaneous height above sea level), "EPSG:5831" (instantaneous depth below sea level), or "EPSG:5703" (NAVD88 height).</i>	RECOMMENDED

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42	geospatial_lat_min	<p>Describes a simple latitude/longitude bounding box. geospatial_lat_min specifies the southernmost latitude; geospatial_lat_max specifies the northernmost latitude; geospatial_lon_min specifies the westernmost longitude; geospatial_lon_max specifies the easternmost longitude of the bounding box.</p> <p>The values of geospatial_lon_min and geospatial_lon_max reflect the actual longitude data values. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian or Prime Meridian), to geospatial_lon_min.</p> <p>For a more detailed geospatial coverage, see the suggested geospatial attributes.</p>	geospatial_lat_min	<p>Describes a simple lower latitude limit; may be part of a 2- or 3-dimensional bounding region. Geospatial_lat_min specifies the southernmost latitude covered by the dataset.</p>	RECOMMENDED	
43	geospatial_lat_max	<p>Describes a simple latitude/longitude bounding box. geospatial_lat_min specifies the southernmost latitude; geospatial_lat_max specifies the northernmost latitude; geospatial_lon_min specifies the westernmost longitude; geospatial_lon_max specifies the easternmost longitude of the bounding box.</p> <p>The values of geospatial_lon_min and geospatial_lon_max reflect the actual longitude data values. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian or Prime Meridian), to geospatial_lon_min.</p> <p>For a more detailed geospatial coverage, see the suggested geospatial attributes.</p>	geospatial_lat_max	<p>Describes a simple upper latitude limit; may be part of a 2- or 3-dimensional bounding region. Geospatial_lat_max specifies the northernmost latitude covered by the dataset.</p>	RECOMMENDED	
44	geospatial_lon_min	<p>Describes a simple latitude/longitude bounding box. geospatial_lat_min specifies the southernmost latitude; geospatial_lat_max specifies the northernmost latitude; geospatial_lon_min specifies the westernmost longitude; geospatial_lon_max specifies the easternmost longitude of the bounding box.</p> <p>The values of geospatial_lon_min and geospatial_lon_max reflect the actual longitude data values. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian or Prime Meridian), to geospatial_lon_min.</p> <p>For a more detailed geospatial coverage, see the suggested geospatial attributes.</p>	geospatial_lon_min	<p>Describes a simple longitude limit; may be part of a 2- or 3-dimensional bounding region. geospatial_lon_min specifies the westernmost longitude covered by the dataset. See also geospatial_lon_max.</p>	RECOMMENDED	

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45	geospatial_lon_max	Describes a simple latitude/longitude bounding box. geospatial_lat_min specifies the southernmost latitude; geospatial_lat_max specifies the northernmost latitude; geospatial_lon_min specifies the westernmost longitude; geospatial_lon_max specifies the easternmost longitude of the bounding box. The values of geospatial_lon_min and geospatial_lon_max reflect the actual longitude data values. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian or Prime Meridian), to geospatial_lon_min. For a more detailed geospatial coverage, see the suggested geospatial attributes.	geospatial_lon_max	Describes a simple longitude limit; may be part of a 2- or 3-dimensional bounding region. geospatial_lon_max specifies the easternmost longitude covered by the dataset. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian for -180:180 values, or Prime Meridian for 0:360 values), to geospatial_lon_min; for example, geospatial_lon_min=170 and geospatial_lon_max=-175 incorporates 15 degrees of longitude (ranges 170 to 180 and -180 to -175).	RECOMMENDED
46	geospatial_vertical_min	Describes a simple latitude/longitude bounding box. geospatial_lat_min specifies the southernmost latitude; geospatial_lat_max specifies the northernmost latitude; geospatial_lon_min specifies the westernmost longitude; geospatial_lon_max specifies the easternmost longitude of the bounding box. The values of geospatial_lon_min and geospatial_lon_max reflect the actual longitude data values. Cases where geospatial_lon_min is greater than geospatial_lon_max indicate the bounding box extends from geospatial_lon_max, through the longitude range discontinuity meridian (either the antimeridian or Prime Meridian), to geospatial_lon_min. For a more detailed geospatial coverage, see the suggested geospatial attributes.	geospatial_vertical_min	Describes the numerically smaller vertical limit; may be part of a 2- or 3-dimensional bounding region. See geospatial_vertical_positive and geospatial_vertical_units.	RECOMMENDED
47	geospatial_vertical_max	Describes a simple vertical bounding box. For a more detailed geospatial coverage, see the suggested geospatial attributes.	geospatial_vertical_max	Describes the numerically larger vertical limit; may be part of a 2- or 3-dimensional bounding region. See geospatial_vertical_positive and geospatial_vertical_units.	RECOMMENDED
48	geospatial_vertical_units	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_vertical_units	Units for the vertical axis described in "geospatial_vertical_min" and "geospatial_vertical_max" attributes. The default is EPSG:4979 (height above the ellipsoid, in meters); other vertical coordinate reference systems may be specified. Note that the common oceanographic practice of using pressure for a vertical coordinate, while not strictly a depth, can be specified using the unit bar. Examples: 'EPSG:5829' (instantaneous height above sea level), 'EPSG:5831' (instantaneous depth below sea level).	SUGGESTED
49	geospatial_vertical_positive	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_vertical_positive	One of 'up' or 'down'. If up, vertical values are interpreted as 'altitude', with negative values corresponding to below the reference datum (e.g., under water). If down, vertical values are interpreted as 'depth', positive values correspond to below the reference datum. Note that if geospatial_vertical_positive is down ('depth' orientation), the geospatial_vertical_min attribute specifies the data's vertical location furthest from the earth's center, and the geospatial_vertical_max attribute specifies the location closest to the earth's center.	RECOMMENDED (was SUGGESTED)
50	geospatial_lat_units	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_lat_units	Units for the latitude axis described in "geospatial_lat_min" and "geospatial_lat_max" attributes. These are presumed to be "degree_north"; other options from uunits may be specified instead.	SUGGESTED
51	geospatial_lat_resolution	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_lat_resolution	Information about the targeted spacing of points in latitude. Recommend describing resolution as a number value followed by the units. Examples: '100 meters', '0.1 degree'	SUGGESTED

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52	geospatial_lon_units	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_lon_units	Units for the longitude axis described in "geospatial_lon_min" and "geospatial_lon_max" attributes. These are presumed to be "degree_east"; other options from udunits may be specified instead.	SUGGESTED
53	geospatial_lon_resolution	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_lon_resolution	Information about the targeted spacing of points in longitude. Recommend describing resolution as a number value followed by units. Examples: '100 meters', '0.1 degree'	SUGGESTED
54	geospatial_vertical_resolution	Further refinement of the geospatial bounding box can be provided by using these units and resolution attributes	geospatial_vertical_resolution	Information about the targeted vertical spacing of points. Example: '25 meters'	SUGGESTED
55	TEMPORAL BOUNDS				
56	time_coverage_start	Describes the temporal coverage of the data as a time range.	time_coverage_start	Describes the time of the first data point in the data set. Use the ISO 8601:2004 date format, preferably the extended format as recommended in the Attributes Content Guidance section.	RECOMMENDED
57	time_coverage_end	Describes the temporal coverage of the data as a time range.	time_coverage_end	Describes the time of the last data point in the data set. Use ISO 8601:2004 date format, preferably the extended format as recommended in the Attributes Content Guidance section.	RECOMMENDED
58	time_coverage_duration	Describes the temporal coverage of the data as a time range.	time_coverage_duration	Describes the duration of the data set. Use ISO 8601:2004 duration format, preferably the extended format as recommended in the Attributes Content Guidance section.	RECOMMENDED
59	time_coverage_resolution	Describes the temporal coverage of the data as a time range.	time_coverage_resolution	Describes the targeted time period between each value in the data set. Use ISO 8601:2004 duration format, preferably the extended format as recommended in the Attributes Content Guidance section.	RECOMMENDED
60	DATE- AND TIME-STAMPS				
61	date_created	The date on which the data was created.	date_created	The date on which this version of the data was created. (Modification of values implies a new version, hence this would be assigned the date of the most recent values modification.) Metadata changes are not considered when assigning the date_created. The ISO 8601:2004 extended date format is recommended, as described in the Attribute Content Guidance section.	RECOMMENDED
62	date_modified	The date on which this data was last modified.	date_modified	The date on which the data was last modified. Note that this applies just to the data, not the metadata. The ISO 8601:2004 extended date format is recommended, as described in the Attributes Content Guidance section.	SUGGESTED
63	date_issued	The date on which this data was formally issued.	date_issued	The date on which this data (including all modifications) was formally issued (i.e., made available to a wider audience). Note that these apply just to the data, not the metadata. The ISO 8601:2004 extended date format is recommended, as described in the Attributes Content Guidance section.	SUGGESTED
64	<i>(new in 1.3)</i>		date_metadata_modified	The date on which the metadata was last modified. The ISO 8601:2004 extended date format is recommended, as described in the Attributes Content Guidance section.	SUGGESTED
65	VARIABLE-LEVEL ATTRIBUTES				
66	long_name	A long descriptive name for the variable (not necessarily from a controlled vocabulary).	long_name	A long descriptive name for the variable (not necessarily from a controlled vocabulary). This attribute is recommended by the NetCDF Users Guide, the COARDS convention, and the CF convention.	HIGHLY RECOMMENDED —VARIABLES
67	standard_name	A long descriptive name for the variable taken from a controlled vocabulary of variable names.	standard_name	A long descriptive name for the variable taken from a controlled vocabulary of variable names. We recommend using the CF convention and the variable names from the CF standard name table. This attribute is recommended by the CF convention.	HIGHLY RECOMMENDED —VARIABLES
68	units	The units of the variables data values. This attributes value should be a valid udunits string.	units	The units of the variable's data values. This attribute value should be a valid udunits string. The "units" attribute is recommended by the NetCDF Users Guide, the COARDS convention, and the CF convention.	HIGHLY RECOMMENDED —VARIABLES

