



Field Specification for data reporting

Short version

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Dissemination level

PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	
CI	Classified, as referred to in Commission Decision 2001/844/EC	

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1 Introduction

The following document provides a short reference to the columns used in the reporting template (basic and extended).

When using Microsoft Excel as reporting file format, the different information blocks (e.g. station, method, data, and references) are tables within one spreadsheet.

ZOEBELBODEN_VEG_SPECCOVER_2015_V20170315.xls

- *STATION*
- *METHOD*
- *DATA*
- *Ref_STYPE etc.*

If text formats (e.g. csv or txt) are used, the information blocks (e.g. station, method, data, references) are provided in separate files and zipped providing

ZOEBELBODEN_VEG_SPECCOVER_2015_V20170315.zip

- *STATION.CSV*
- *METHOD.CSV*
- *REFERENCE.CSV*
- *AT003_ZOEBELBODEN_VEGETATION_2015_V20170315.CSV*

The different sections are described in the following. The list of fields is following the extended data reporting file using the **Microsoft Excel template**. The lists used in the **basic data reporting template** are marked with bold letters in the column *Field name* and an asterisk (*).

2 Field description

2.1 Station

Definition: A **station** is an observation entity within a LTER Site or LTSER Platform. Station in this respect is synonym to plot, observation location, sensor location, etc. and is defined by a location, elevation and installation height (if relevant).

Basic information about the stations is provided in the table STATION. If additional fields are needed, e.g. habitat type for vegetation data, optional additional fields (columns) can be created.

In general stations are not described in DEIMS-SDR. In this case additional information need to be provided with the data. Stations also could be uploaded as additional data table.

x ... mandatory

o ... optional

c ... conditional

Field name	Description	Example	M	D	V
SITE_CODE	<p>Site code – as the reference to the documentation of the LTER site and LTSER Platform in DEIMS. Provide either the Site code (e.g. LTER_EU_AT_003) or the Site-UUID (e.g. https://data.lter-europe.net/deims/site/0ce0d289-9ef9-4232-a981-8f34869db76d)</p> <p>Condition: if more than one site is referenced in the data, the site identification needs to be provided</p>	LTER_EU_AT_003	o	o	o
SCODE*	<p>Station code or Station identifier (ID) - Code for the station within the site. A station is any measuring unit such as a sampling plot or a meteorological station. If the station equals the site, meaning that only one station is used within the site, only the site identifier is provided in the data recording sheet. If external identification systems (e.g. WMO Station ID) are existing, this identifier could be used to reference the station. If a DEIMS-SDR UUID for the station exists, this need to be used.</p>	300	x	x	x
SNAME	<p>Station name (UTF-8 character encoding, https://en.wikipedia.org/wiki/UTF-8) provides the name of the station if relevant</p>	IP1			
STYPE*	<p>Station type – type of station according to a fixed list of values:</p> <p><i>PT ... point</i> <i>HLN ... horizontal transect</i> <i>VLN ... vertical transect</i> <i>PL ... areal plot</i></p>	PT	x	x	x
westBounding Coordinate*	<p>bounding box for a station in decimal degree [dec °] WGS84; if a point is represented east and west bounding coordinates are equal; equals to Longitude</p>	7,88749	x	x	x
eastBounding Coordinate*	<p>bounding box for a station in decimal degree [dec °] WGS84; if a point is represented east and west bounding coordinates are equal; equals to Longitude</p>	7,95372	x	x	x
northBounding Coordinate*	<p>bounding box for a station in decimal degree [dec °] WGS84; if a point is represented north and south bounding coordinates are equal; equals to Latitude</p>	45,34080	x	x	x
southBounding Coordinate*	<p>bounding box for a station in decimal degree [dec °] WGS84; if a point is</p>	45,30056	x	x	x

	represented north and south bounding coordinates are equal; equals to Latitude				
altitudeMinimum*	minimum altitude in meter above sea level [m a.s.l.] for the observed station, negative if below water level; if a single point is represented minimum and maximum are equal	265	x	x	x
altitudeMaximum*	maximum altitude in meter above sea level [m a.s.l.] for the observed station, negative if below water level; if a single point is represented minimum and maximum are equal	270	x	x	x
Country	Country - country code: ISO 3166-1 alpha-3 (https://en.wikipedia.org/wiki/ISO_3166-1_alpha-3), e.g. AUT for Austria	AUT			
SampPeriodSince	Sampling period since [ISO date], see ISO 8601: calendar dates as YYYY-MM-DD, time as HH:MM:SS plus a time zone designator (as UTC plus offset) Combined date and time: 2007-04-05T12:30:00-02:00 Any time information <ul style="list-style-type: none"> in UTC (e.g. 2017-03-03T11:00+00:00 or 2017-03-03T11:00UTC or 2017-03-03T11:00Z), or local times, if the UTC offset is provided (e.g. 2017-03-03T13:00+02:00) 	1992-06-01T13:00+02:00			
InstHeight	Installation height – height of the installation of a sensor or device in [cm] measured from the soil surface. Positive and negative values are possible.	200			
plotSize	Plot size in [m2]	25			x
plotShape	Plot shape (length x width) in [m]	5x5			x
Local_Habitat_Type	Local habitat type [text] using local classification (needs to be defined in the method metadata)	Beech forest			x
EUNIS_Habitat_Type	EUNIS habitat type [text] using [EUNIS Habitat Classification] identifier	G2.3			x
Potential_natural_vegetation	Potential natural vegetation [txt] using local syntaxonomic classification schema (needs to be defined in the method metadata)	Fagetum			x

If additional information on the stations (e.g. soil type, geology) needs to be provided additional columns are created in the station table, e.g. soilType. A separate reference files containing the reference list should be provided.

2.2 Method

Definition: A **method** describes the procedure to generate and manipulate the data.

The section contains information on the methods applied for the generation and manipulation of the data. The method section should give an overview on the sampling, the field method and the method used in the lab to create the data value. In addition the method needs to be provided with the metadata description in DEIMS.

x ... mandatory

o ... optional

c ... conditional

Field name	Description	Example	M	D	V
METHOD_CODE	Method code – user defined code for the method description. The code is used to reference to the METHOD_CODE within the data.	ZOE_IM_VEG	x	x	x
SAMPLING	Short method description on how the plots were selected from the total population (selection of plots, observation points, etc.)	<i>Random sampling of spruce stands in the entire area of the site; 5 regularly spaced (10 m) positions on a transect; etc.</i>	x	x	x
FIELD_METHOD	Short method description of the method used in the field either to collect the samples or to do the observation	<i>Volume weighted mixing from 5 bulk sampler, 2 weeks interval of sampling, cooled transportation of the samples</i>	x	x	x
LAB_METHOD	Short method description on the procedures and methods applied in the lab, e.g. filtering, analysis, etc.	<i>45µm filtered; ICP-OES</i>		x	
AGG_METHOD	Short method description of the procedure how the values have been aggregated from primary values; for primary data the aggregation procedure is “NONE”.	<i>Weighted mean value</i>	x	x	x

In case the method is sufficiently described by the metadata record in DEIMS, the *METHOD.CSV* file can contain the following information (including the reference to the :

“For details to the methods applied please refer to the respective metadata record on DEIMS.

[<https://data.lter-europe.net/deims/dataset/xxxxxxxxx>]

2.3 Data

Definition: The **data** are defined as the section where the observation values are provided.

This section contains data on any observation or measurement in the different compartments of the ecosystem. It includes bio-geochemical measurements as well as biotic observations

x ... mandatory

o ... optional

c ... conditional

Field name	Description	Example	M	D	V
SUBPROG	Code for the sub programme for which the data are reported, e.g. BIOCHEM for “biogeochemical data” within the site. This refers to the parameter groups or thematic grouping of data. <i>BIOCHEM biogeochemistry data</i> <i>STRUCTU Structure and function of ecosystems, communities and populations</i> <i>HUMANEC human population and economy</i> <i>SITECHA site characteristics (land use and land cover)</i> Additional values can be defined, but need to be documented in the REFERENCE section.	<i>BIOCHEM</i>			
SITE_CODE	Site code – as the reference to the documentation of the LTER site and LTSER Platform in DEIMS. Provide either the Site code (e.g. LTER_EU_AT_003) or the Site-UUID (e.g. https://data.lter-europe.net/deims/site/0ce0d289-9ef9-4232-a981-8f34869db76d) Condition: if more than one site is referenced in the data, the site identification needs to be provided	<i>LTER_EU_AT_003</i>	o	o	o
ORG_NAME	Abbreviation or name of the organisation providing the data	<i>EAA</i>			
SCODE*	Station code – as reference to the observation location (=station) defined in the table STATION	<i>IP1</i>	x	x	x
MEDIUM	Medium – as the code for the sampled medium in the observation procedure	<i>AIR</i>			

	<p><i>AIR</i> air including meteorology <i>SOIL</i> soil <i>SOILWAT</i> soil water <i>WATER</i> runoff and groundwater <i>SEDIMENT</i> sediments in aquatic environments <i>LITTER</i> litter fall <i>BIOCOM</i> biological communities <i>HUMPOP</i> human population <i>SITECHAR</i> site characteristics (as habitat or landscape structure)</p> <p>Additional values can be defined, but need to be documented in the REFERENCE section.</p>				
LISTMED	Reference list medium – as reference to the list used. Use the code 'ADD' if the code is defined by the user. Otherwise use reference to the reference list.	ELTER			
LEVEL*	Height of measurement in [cm] above ground surface. Condition: If a single measurement for the height of measurement is provided the fields <i>min_level</i> and <i>max_level</i> are not used.	-10	x	x	
MAX_LEVEL	Upper measurement level in [cm] if a range for the observation is provided; the land/water surface is the zero level; values below the surface are provided as negative values (e.g. -20), values above the surface are provided as positive values (e.g. 20).	-15			
MIN_LEVEL	Lower measurement level in [cm] if a range for the observation is provided; the land/water surface is the zero level; values below the surface are provided as negative values (e.g. -20), values above the surface are provided as positive values (e.g. 20)	-5			
SIZE	Size of the sampling plot in [m ²] where the observation takes place or the size of the area for which the aggregated values are representative (e.g. the site or part of the site such as the forested area)	100			x
TIME*	timestamp of measurement [ISO date] (according to ISO 8601): calendar dates as YYYY-MM-DD, time as HH:MM:SS in UTC plus offset; combined date and time as YYYY-MM-DDTHH:MMOffset, e.g. 2007-04-05T12:30:00-02:00 Any time information in converted to UTC time (e.g. 2017-03-03T11:00+00:00 or 2017-03-03T11:00UTC or 2017-03-03T11:00Z) or local times , if the UTC offset is provided (e.g. 2017-03-	2017-03-03T13:00+02:00 2017-03-03 2017-03 2017	x	x	x

	<p>03T13:00+02:00)</p> <p>If aggregations are provided the timestamp is provided as the following</p> <ul style="list-style-type: none"> ○ annual aggregation – provide only the year as YYYY ○ monthly aggregations – provide only the month as YYYY-MM ○ daily aggregations – provide the day as YYYY-MM-DD <p>Condition: if the field <i>TIME</i> is used, the columns <i>YEAR</i>, <i>MONTH</i>, <i>DAY</i>, <i>HOUR</i>, <i>MINUTE</i>, <i>SECOND</i> are omitted</p>				
YEAR	<p>Year [YYYY] of the measurement or the year for which the measurements were aggregated the year of an observation (e.g. plants)</p> <p>Alternative:</p> <p>Time stamp as [ISO date], see ISO 8601: calendar dates as YYYY-MM-DD, time as HH:MM:SS plus a time zone designator (as UTC plus offset), e.g. 2007-04-05T12:30:00-02:00</p> <p>Any time information</p> <ul style="list-style-type: none"> ○ in UTC (e.g. 2017-03-03T11:00+00:00 or 2017-03-03T11:00UTC or 2017-03-03T11:00Z), ○ or local times, if the UTC offset is provided (e.g. 2017-03-03T13:00+02:00) 	<p>2017</p> <p>2017-03-03T13:00+02:00</p>			
MONTH	<p><i>Month</i> of the measurement or aggregation. Leave blank if not relevant</p> <p>→ see notes Year for aggregated time information</p>	08			
DAY	<p><i>Day</i> of the measurement or the aggregation. Leave blank if not relevant</p> <p>→ see notes Year for aggregated time information</p>	01			
HOUR	<p><i>Hour</i> of the measurement or the aggregation. Leave blank if not relevant</p> <p>→ see notes Year for aggregated time information</p>	12			
MINUTE	<p><i>Minute</i> of the measurement or the aggregation. Leave blank if not relevant</p> <p>→ see notes Year for aggregated time information</p>	30			
SECOND	<p><i>Second</i> of the measurement or the</p>	05			

	aggregation. Leave blank if not relevant → see notes Year for aggregated time information																																																												
SPOOL	Spatial pool as the number of spatial entities (e.g. sensors, plots) used to calculate the data value If not relevant or described in the method section, leave blank.	5																																																											
TPOOL	Temporal pool as the number of observations used to calculate the data value If not relevant or described in the method section, leave blank.	10																																																											
TLEVEL	Temporal level of aggregation or observation <i>HOUR</i> <i>hourly values (60 min)</i> <i>DAY</i> <i>daily values (24 hrs)</i> <i>WEEK</i> <i>weekly values (7 days)</i> <i>MONTH</i> <i>monthly values</i> <i>SEASON</i> <i>seasonly values (e.g. spring)</i> <i>HYEAR</i> <i>half yearly values (6 month)</i> <i>YEAR</i> <i>yearly values (12 month)</i> Additional values can be defined, but need to be documented in the REFERENCE section.																																																												
TAXA*	Species name either defined by a species letter code (genus & species) or the full name. Only relevant when reporting species information. In case of using species letter codes the definition needs to be provided in the REFERENCE section.	FAG SYLV <i>Fagus sylvatica L.</i>			X																																																								
LISTTAXA	Reference to the taxonomic list used for the observations	<i>Flora of Austria (2005)</i>																																																											
SUBST*	Substance code or parameter name as abbreviation <table border="0"> <tr> <td><i>LISTSUB</i></td> <td></td> <td><i>SUBST</i></td> <td><i>Name</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>ALK</i></td> <td></td> <td><i>Alkalinity</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>BOD</i></td> <td></td> <td><i>Biochemical oxygen demand</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>TC</i></td> <td></td> <td><i>Total carbon</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>CODCR</i></td> <td></td> <td><i>Chemical oxygen demand COD-Cr</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>CODMN</i></td> <td></td> <td><i>Chemical oxygen demand COD-Mn</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>DC</i></td> <td></td> <td><i>Dissolved carbon</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>DIC</i></td> <td></td> <td><i>Dissolved inorganic carbon</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>DOC</i></td> <td></td> <td><i>Dissolved organic carbon</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>DOD</i></td> <td></td> <td><i>Direct oxygen demand</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>NH3</i></td> <td></td> <td><i>Ammonia</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>NH4</i></td> <td></td> <td><i>Ammonium</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>NH4N</i></td> <td></td> <td><i>Ammonium as nitrogen</i></td> </tr> <tr> <td><i>DB</i></td> <td><i>NKJ</i></td> <td></td> <td><i>Kjeldahl nitrogen</i></td> </tr> </table>	<i>LISTSUB</i>		<i>SUBST</i>	<i>Name</i>	<i>DB</i>	<i>ALK</i>		<i>Alkalinity</i>	<i>DB</i>	<i>BOD</i>		<i>Biochemical oxygen demand</i>	<i>DB</i>	<i>TC</i>		<i>Total carbon</i>	<i>DB</i>	<i>CODCR</i>		<i>Chemical oxygen demand COD-Cr</i>	<i>DB</i>	<i>CODMN</i>		<i>Chemical oxygen demand COD-Mn</i>	<i>DB</i>	<i>DC</i>		<i>Dissolved carbon</i>	<i>DB</i>	<i>DIC</i>		<i>Dissolved inorganic carbon</i>	<i>DB</i>	<i>DOC</i>		<i>Dissolved organic carbon</i>	<i>DB</i>	<i>DOD</i>		<i>Direct oxygen demand</i>	<i>DB</i>	<i>NH3</i>		<i>Ammonia</i>	<i>DB</i>	<i>NH4</i>		<i>Ammonium</i>	<i>DB</i>	<i>NH4N</i>		<i>Ammonium as nitrogen</i>	<i>DB</i>	<i>NKJ</i>		<i>Kjeldahl nitrogen</i>	COVE_F	X	X	X
<i>LISTSUB</i>		<i>SUBST</i>	<i>Name</i>																																																										
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	DB	NO2	Nitrite				
	DB	NO23	Nitrite nitrate				
	DB	NO23N	Nitrite nitrate as nitrogen				
	DB	NO2N	Nitrite as nitrogen				
	DB	NO3	Nitrate				
	DB	NO3N	Nitrate as nitrogen				
	DB	NOXNDO	Nitrogen oxides as NO2				
	DB	NTOT	Total nitrogen				
	DB	O2	Oxygen				
	DB	O2D	Dissolved oxygen				
	DB	O2S	Oxygen saturation				
	DB	PO4	Phosphate				
	DB	PO4P	Phosphate as phosphorous				
	DB	PTOT	Total phosphorous				
	DB	TIC	Total inorganic carbon				
	DB	TOC	Total organic carbon				
	DB	TOD	Total oxygen demand				
	DB	COND	Conductivity				
	DB	DEPTHB	Depth of sampling from bottom				
	DB	DEPTH S	Depth of sampling from surface				
	DB	DEPTHT	Depth to bottom				
	DB	EH	Redox potential				
	DB	FLOW	Flow				
	DB	HH	Humidity				
	DB	LENGTH	Length				
	DB	PH	pH				
	DB	SDT	Secchi disc transparency				
	DB	TEMP	Temperature				
	DB	TS	Total solids				
	DB	SS	Suspended solids				
	DB	TURB	Turbidity				
	DB	WL	Water level				
	DB	WLL	Water level local level				
	DB	WLS	Water level sea level				
	DB	BPP	Biological primary production net				
	DB	BPY	Biological primary productivity net				
	DB	CP	Chlorophyll a				
	DB	PREC	Precipitation				
	DB	DISCH	Discharge				
	DB	P	Phosphorus				
	DB	LDEP	litter deposition (weight)				
	DB	WEIGHT	Weight				
	*	BIOMASS	biomass of				
	*	SPNB	number of species				
	*	AB	abundance of species				
	*	THP	total human population in the site				
	*	HDENSITY	density				
	*	HAGESTR	age structure				
	*	HECONACT	main economic activity				
	*	HINCOME	average income				
	*	LANDUSE	land use				
	*	LANDCOV	land cover				
	IM	COVE_T	species cover tree layer				
	IM	COVE_S	species cover shrub layer				
	IM	COVE_F	species cover field layer				
	IM	COVE_B	species cover bottom layer				
			Additional values can be defined, but need to be documented in the REFERENCE section.				
LISTSUB			Reference to the code list of substances and parameter names, e.g. EnvThes or other	IM			

	vocabularies. Use ADD if defined by the user.				
METHOD_CODE	Reference to the METHOD_CODE as defined in the METHOD table/file				
VALUE*	Data value of the observation. The comma separator needs to be consistently used in the data file either being ',' or '.'	25	X	X	X
UNIT*	Unit of the observation Condition: <i>provided if relevant</i>	%	X	X	C
FLAGQUA*	Quality flag for the data values based on the applied data quality control procedure as provided by the local system <i>Examples</i> L <i>less than detection limit</i> E <i>estimated from measured value</i> Additional values can be defined, but need to be documented in the REFERENCE section.		0	0	0
FLAGSTA*	Status flag for the data defining the level of aggregation of the data value according to the attached list of possible values. If not relevant leave blank. X <i>Arithmetic average, mean; e.g. monthly average</i> W <i>Weighted mean</i> S <i>Sum</i> M <i>Mode</i> A <i>Minimum</i> Z <i>Maximum</i> XA <i>average monthly minimum</i> XZ <i>average monthly maximum</i> SZ <i>maximum daily sum</i> Additional values can be defined, but need to be documented in the REFERENCE section.	X	0	0	0

If the list of parameters (measures) is standardised and repeated measurements are made (e.g. in experimental design) the measures also can be provided in columns. In this case no specific information on the single values can be given (e.g. quality). In the example an alternative form of data reporting is provided. This format is not recommended for the basic eLTER data reporting.

2.4 Reference

This section is about to provide the definitions for the codes used in the data reporting.

If using the **Microsoft Excel template** the reference lists are provided in separate tables within the spreadsheet, e.g. Ref_SUBST.

If using text files the references are provided as separate file being structured as defined in the following. All definitions are provided in a single file.

Field name	Description	Example	M	C	V
FIELD_NAME	Name of the field the reference is referring to	<i>SUBST</i>			
LIST_CODE	Name of the code list , if referring to an existing code list the name of the code list is provided (e.g. DB, EnvThes). If the code is defined by the user, use 'ADD' as identification	<i>ADD</i>			
CODE	Code of the entry defined as abbreviation of the term, e.g. parameter name	<i>WOOD_HARVEST</i>			
NAME	Full name defined as the full name of the term, e.g. full species name	<i>Yearly wood harvest</i>			
DEFINITION	Definition of the term used, in order to allow the user to understand the data.	<i>Yearly amount of wood harvested from the plot</i>			

If additional fields (e.g. identifier) are needed, please add them to the reference table.

3 Examples

3.1 Example station description

SCODE	STY PE	westBoundingC coordinate	eastBoundingC coordinate	northBounding Coordinate	southBounding Coordinate	altitude Minimum	altitud eMaximum
IP1	PT	14,4466	14,4467	47,8385	47,8384	950	950

3.2 Example biophysical data

Recommended version basic format

SCODE	SUBST	LEVEL	TIME	VALUE	UNIT	FLAGQUA	FLAGSTA
IP1	TEMP	200	2016-03-15	5.5	°C		X
IP1	PREC	100	2016-03-03	10.2	MM		S
IP1	TEMP	200	2016-02-15	2.5	°C		X
IP1	NH4N	100	2016-03	5.5	mg N/l		W
IP1	SO4S	100	2016-03	10.2	mg S/l		W
IP1	CA	100	2016-03	2.5	Mg/l	L	W
...

Alternative version

SCODE	LEVEL	TIME	TEMP	PREC	NH4N	SO4S	CA	TYPE
IP1	100	2016-03	5.5	10.2	2.5	5.5	2.5	Forest
IP1	100	2016-04	5.2	1.2	2.2	5.8	1.2	Forest

Note: Resolution and methods needs to be ddescribed in detail for the single parameter. Additional information for each value (e.g. aggregation level or quality) cannot be provided in this format.

3.3 Example biodiversity data

SCODE	SUBST	TIME	TAXA	VALUE
1	COVE_T1	2016-06-25	FAG SYLV	3
1	COVE_T1	2016-06-25	PIC ABIE	3
1	COVE_S	2016-06-25	FAG SYLV	1
1	COVE_F	2016-06-25	OXA ACET	2
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3.4 Example method documentation

CODE	SAMPLING	FIELD_METHOD	LAB_METHOD	AGG_METHOD
METH_1	providing specification for the sampling methods	providing specification for the field method	providing specification for the analysis method, including the statistical analysis of the dato if relevant	provide specification for the aggregation method
METH_2	example selected	water sample	ICP_OES	

3.5 Example reference list

FIELD_NAME	LIST_CODE	CODE	NAME	DEFINITION
SUBST	CF	NOXN	atmosphere_mass_content_of_nox_expressed_as_nitrogen	"Content" indicates a quantity per unit area. The "atmosphere content" of a quantity refers to the vertical integral from the surface to the top of the atmosphere. For the content between specified levels in the atmosphere, standard names including content_of_atmosphere_layer are used. "Nox" means a combination of two radical species containing nitrogen and oxygen: NO+NO2. The phrase 'expressed_as' is used in the construction A_expressed_as_B, where B is a chemical constituent of A. It means that the quantity indicated by the standard name is calculated solely with respect to the B contained in A, neglecting all other chemical constituents of A.

SUBST	CF	NOYN	atmosphere_mass_content_of_noy_expressed_as_nitrogen	<p>"Content" indicates a quantity per unit area. The "atmosphere content" of a quantity refers to the vertical integral from the surface to the top of the atmosphere. For the content between specified levels in the atmosphere, standard names including content_of_atmosphere_layer are used. "Noy" describes a family of chemical species. The family usually includes atomic nitrogen (N), nitrogen monoxide (NO), nitrogen dioxide (NO₂), dinitrogen pentoxide (N₂O₅), nitric acid (HNO₃), peroxyntiric acid (HNO₄), bromine nitrate (BrONO₂), chlorine nitrate (ClONO₂) and organic nitrates (most notably peroxyacetyl nitrate, sometimes referred to as PAN, (CH₃COO₂NO₂)). The list of individual species that are included in a quantity having a group chemical standard name can vary between models. Where possible, the data variable should be accompanied by a complete description of the species represented, for example, by using a comment attribute. The phrase 'expressed_as' is used in the construction A_expressed_as_B, where B is a chemical constituent of A. It means that the quantity indicated by the standard name is calculated solely with respect to the B contained in A, neglecting all other chemical constituents of A.</p>
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