

## BIF file data description

The BIF (BADM Interchangeable Format) is an international standard developed with AmeriFlux to distribute sporadic or non-continuous measurements. The BIF consists of five columns: SITE\_ID, GROUP\_ID, VARIABLE\_GROUP, VARIABLE, and DATAVALUE. A variable group is a set of variables that are reported together (e.g. a variable value, the date it was collected, and the method used to collect it). Sites may report multiple instances of the same variable group associated with different measurements collected over time, methods, locations etc. The group ID uniquely identifies the data belonging to the same instance of a reported variable group. The variable names and data value provide the details of the reported data within a variable group.

There is a large group of variables that are provided using the BIF format including the metadata and the ancillary measurements. In particular the following files are in BIF format:

- **SETUPINFO** that contains information about the model, location, maintenance and disturbances, variable measured and installation/modification date for all the sensors used in the station.
- **INSTCALIB** that contains information about the calibration date for all the sensors used in the station.
- **ANCILLARY** that contains all the general information and ancillary measurements collected at the station, such location, team members, species, biomass, LAI etc..

In the tables below are provided the description and the units of the variables included in the three files (when available). The unit "LIST(XXXX)" indicate that the variable has a controlled vocabulary that is provided in table 4.

More information and details about the BADM system can be found in the following document: Papale, D., Canfora, E., & Polidori, D. (2017). ICOS Ecosystem Instructions for Use the ICOS BADM (Version 20171013). ICOS Ecosystem Thematic Centre. <https://doi.org/10.18160/6m8s-fy7m>

Table 1: variables included in the SETUPINFO file and their units.

VARIABLE NAME	VARIABLE DESCRIPTION	UNIT
SITE_ID	Six character site identifier.	CC-Xxx
SITE_NAME	Geographical name of the site	free text
LOCATION_LAT	Latitude of the site	decimal degrees
LOCATION_LONG	Longitude of the site	decimal degrees
LOCATION_ELEV	Elevation of the site above sea level	m
UTC_OFFSET	Offset from UTC of site data	hour
EC_MODEL	Manufacturer and/or model, or type of instrument	LIST(EC_INST)

EC_SN	Serial number or other unique text string used to identify this instrument	controlled text
EC_TYPE	Operations, maintenance or event happening at the sensor	LIST(EC_TYPE)
EC_HEIGHT	Meters aboveground level	m
EC_EASTWARD_DIST	Distance E-W from the site reference point. West of the reference point is negative.	m
EC_NORTHWARD_DIST	Distance N-S from the site reference point. South of the reference point is negative.	m
EC_DATE	Instrument operations, maintenance or event date	YYYYMMDDHHMM
EC_DATE_UNC	Uncertainty in the date	days
BM_MODEL	Manufacturer and/or model, or type of instrument	LIST(BM_INST)
BM_SN	Serial number or other unique text string used to identify this instrument	controlled text
BM_TYPE	Operations, maintenance or event happening at the sensor	LIST(BM_TYPE)
BM_VARIABLE_H_V_R	Variable code suffixed by positional indices	LIST(VAR_CODE) + controlled text
BM_HEIGHT	Meters aboveground level	m
BM_EASTWARD_DIST	Distance E-W from the site reference point. West of the reference point is negative.	m
BM_NORTHWARD_DIST	Distance N-S from the site reference point. South of the reference point is negative.	m
BM_DATE	Instrument operations, maintenance or event date	YYYYMMDDHHMM
BM_DATE_UNC	Uncertainty in the date	days
STO_MODEL	Manufacturer and/or model, or type of instrument	LIST(STO_INST)
STO_SN	Serial number or other unique text string used to identify this instrument	controlled text
STO_CONFIG	Storage sampling scheme	LIST(STO_CONFIG)
STO_LEVEL	Sampling level number (reported in the raw data files)	integer
STO_TYPE	Operations, maintenance or event happening at the storage system	LIST(STO_TYPE)
STO_HEIGHT	Sampling level height	m
STO_EASTWARD_DIST	Distance E-W from the site reference point. West of the reference point is negative.	m
STO_NORTHWARD_DIST	Distance N-S from the site reference point. South of the reference point is negative.	m
STO_HORIZ_SAMPLING_POINTS	Number of sampling points at the sampling level	integer
STO_DATE	Instrument operations, maintenance or event date	YYYYMMDDHHMM
STO_DATE_UNC	Uncertainty in the date	days

Table 2: variables included in the INSTCALIB file and their units.

VARIABLE NAME	VARIABLE DESCRIPTION	UNIT
SITE_ID	Six character site identifier.	CC-Xxx
SITE_NAME	Geographical name of the site	free text
LOCATION_LAT	Latitude of the site	decimal degrees
LOCATION_LONG	Longitude of the site	decimal degrees
LOCATION_ELEV	Elevation of the site above sea level	m
UTC_OFFSET	Offset from UTC of site data	hour
INST_MODEL	Manufacturer and/or model, or type of instrument	LIST(INST_MODEL)
INST_SN	Serial number or other unique text string used to identify this instrument	controlled text
INST_FACTORY	Instrument factory purchase, calibration or repair. To be used also for laboratory activities.	LIST(INST_FACTORY)
INST_DATE	Instrument applicability date	YYYYMMDDHHMM

Table 3: variables included in the ANCILLARY file and their units.

VARIABLE NAME	VARIABLE DESCRIPTION	UNIT
SITE_ID	Six character site identifier.	CC-Xxx
SITE_NAME	Geographical name of the site	free text
LOCATION_LAT	Latitude of the site	decimal degrees
LOCATION_LONG	Longitude of the site	decimal degrees
LOCATION_ELEV	Elevation of the site above sea level	m
UTC_OFFSET	Offset from UTC of site data	hour
MAT	Average annual temperature	degrees C
MAP	Average total annual precipitation	mm
MAR	Average annual incoming SW radiation	W m <sup>-2</sup>
MAC_YEARS	Number of years used to calculate the annual average of climatic variables	Years
MAC_DATE	Date of the mean climate variables report	YYYY
MAC_COMMENTS	Comments on the mean climate variables	free text
TEAM_MEMBER_NAME	Station team member name (First Family, e.g. Timo Vesala).	free text
TEAM_MEMBER_ROLE	Station team member role	LIST(Team_ROLE)
TEAM_MEMBER_EMAIL	Station team member email	controlled text
TEAM_MEMBER_INSTITUTION	Station team member institution	free text
SPP_O	Overstory species (taxa)	Scientific name
SPP_O_VEGTYPE	Overstory vegetation type	LIST(VEGTYPE)
SPP_O_PERC	Overstory species or vegetation type percent cover (by mass, number, estimated abundance, or area)	%

SPP_O_PERC_STATISTIC	Overstory species or vegetation type percent cover statistic	LIST(STATISTIC)
SPP_O_PERC_STATISTIC_TYPE	Overstory species or vegetation type percent cover statistic type	LIST(STATISTIC_TYPE)
SPP_O_PERC_STATISTIC_NUMBER	Number of observations used to determine overstory species or vegetation type percent cover statistic	integer number
SPP_U	Understory species (taxa)	Scientific name
SPP_U_VEGTYPE	Understory vegetation type	LIST(VEGTYPE)
SPP_U_PERC	Understory species or vegetation type percent cover (by mass, number, estimated abundance, or area)	%
SPP_U_PERC_STATISTIC	Understory species or vegetation type percent cover statistic	LIST(STATISTIC)
SPP_U_PERC_STATISTIC_TYPE	Understory species or vegetation type percent cover statistic type	LIST(STATISTIC_TYPE)
SPP_U_PERC_STATISTIC_NUMBER	Number of observations used to determine understory species or vegetation type percent cover statistic	integer number
SPP_PERC_UNIT	Unit of the species or vegetation type percent cover measurement	LIST(UNIT_SPP)
SPP_APPROACH	Species or vegetation type percent cover measurement approach	free text
SPP_DATE	Species or vegetation type percent cover measurement date	YYYYMMDDHHMM
SPP_DATE_START	Start date of species or vegetation type percent cover measurement	YYYYMMDDHHMM
SPP_DATE_END	End date of species or vegetation type percent cover measurement	YYYYMMDDHHMM
SPP_DATE_UNC	Uncertainty in the species or vegetation type percent cover measurement date, start date, and/or end date	days
SPP_COMMENT	Species or vegetation type percent cover measurement comments	free text
LAI	Vegetation (Plant, Leaf, Green) Area Index	m <sup>2</sup> m <sup>-2</sup>
LAI_TYPE	Vegetation (Plant, Leaf, Green) Area Index type	LIST(LAI_TYPE)
LAI_CANOPY_TYPE	Vegetation (Plant, Leaf, Green) Area Index canopy type	LIST(LAI_CANOPY_TYPE)
LAI_SPP	Vegetation (Plant, Leaf, Green) Area Index species (taxa)	Scientific name
LAI_VEGTYPE	Vegetation (Plant, Leaf, Green) Area Index vegetation type	LIST(VEGTYPE)

LAI_STATISTIC	Vegetation (Plant, Leaf, Green) Area Index statistic	LIST(STATISTIC)
LAI_STATISTIC_TYPE	Vegetation (Plant, Leaf, Green) Area Index statistic type	LIST(STATISTIC_TYPE)
LAI_STATISTIC_NUMBER	Number of observations used to determine Vegetation (Plant, Leaf, Green) Area Index statistic	integer number
LAI_CLUMP	Foliage element clumping index for Vegetation (Plant, Leaf, Green) Area Index measurement	decimal number
LAI_METHOD	Vegetation (Plant, Leaf, Green) Area Index methodology	LIST(LAI_METHOD)
LAI_APPROACH	Vegetation (Plant, Leaf, Green) Area Index measurement approach	free text
LAI_DATE	Vegetation (Plant, Leaf, Green) Area Index measurement date	YYYYMMDDHHMM
LAI_DATE_START	Start date of Vegetation (Plant, Leaf, Green) Area Index measurment	YYYYMMDDHHMM
LAI_DATE_END	End date of Vegetation (Plant, Leaf, Green) Area Index measurment	YYYYMMDDHHMM
LAI_DATE_UNC	Uncertainty in the Vegetation (Plant, Leaf, Green) Area Index measurement date, start date, and/or end date	days
LAI_COMMENT	Vegetation (Plant, Leaf, Green) Area Index comments	free text
BIOMASS	Biomass	units specified in BIOMASS_UNIT
BIOMASS_UNIT	Measurement unit of Biomass	LIST(UNIT_BIOMASS)
BIOMASS_SPP	Biomass species (taxa)	Scientific name
BIOMASS_VEGTYPE	Biomass vegetation type	LIST(VEGTYPE)
BIOMASS_STATISTIC	Biomass statistic	LIST(STATISTIC)
BIOMASS_STATISTIC_TYPE	Biomass statistic type	LIST(STATISTIC_TYPE)
BIOMASS_NUMBER	Number of observations used to determine Biomass statistics	integer number
BIOMASS_ORGAN	Organ or component for which biomass is reported	LIST(BM_ORGAN)
BIOMASS_PHEN	Phenology of the organ for which biomass is reported	LIST(BM_ORGAN_PHEN)
BIOMASS_APPROACH	Biomass approach	free text
BIOMASS_DATE	Biomass measurement date	YYYYMMDDHHMM
BIOMASS_DATE_START	Start date of Biomass measurement	YYYYMMDDHHMM
BIOMASS_DATE_END	End date of Biomass measurement	YYYYMMDDHHMM

BIOMASS_DATE_UNC	Uncertainty in the Biomass measurement date, start date, and/or end date	days
BIOMASS_COMMENT	Biomass comments	free text
HEIGHTC	Canopy height	m
HEIGHTC_SPP	Canopy height species (taxa)	Scientific name
HEIGHTC_VEGTYPE	Canopy height vegetation type	LIST(VEGTYPE)
HEIGHTC_STATISTIC	Canopy height statistic	LIST(STATISTIC)
HEIGHTC_STATISTIC_TYPE	Canopy height statistic type	LIST(STATISTIC_TYPE)
HEIGHTC_STATISTIC_NUMBER	Number of observations used to determine canopy height statistic	integer number
HEIGHTC_U	Understory canopy height	m
HEIGHTC_U_SPP	Understory canopy height species (taxa)	Scientific name
HEIGHTC_U_VEGTYPE	Understory canopy height vegetation type	LIST(VEGTYPE)
HEIGHTC_U_STATISTIC	Understory canopy height statistic	LIST(STATISTIC)
HEIGHTC_U_STATISTIC_TYPE	Understory canopy height statistic type	LIST(STATISTIC_TYPE)
HEIGHTC_U_STATISTIC_NUMBER	Number of observations used to determine understory canopy height statistic	integer number
HEIGHTC_APPROACH	Canopy height measurement approach	free text
HEIGHTC_DATE	Canopy height measurement date	YYYYMMDDHHMM
HEIGHTC_DATE_START	Start date of canopy height measurment	YYYYMMDDHHMM
HEIGHTC_DATE_END	End date of canopy height measurment	YYYYMMDDHHMM
HEIGHTC_DATE_UNC	Uncertainty in the canopy height measurement date, start date, and/or end date	days
HEIGHTC_COMMENT	Canopy height comments	free text
SA	Stand age	years
SA_STATISTIC	Stand age statistic	LIST(STATISTIC)
SA_STATISTIC_TYPE	Stand age statistic type	LIST(STATISTIC_TYPE)
SA_STATISTIC_NUMBER	Number of observations used to determine stand age statistic	integer number
SA_APPROACH	Stand age measurement approach	free text
SA_DATE	Stand age measurement date	YYYYMMDDHHMM
SA_DATE_START	Start date of stand age measurment	YYYYMMDDHHMM
SA_DATE_END	End date of stand age measurment	YYYYMMDDHHMM
SA_DATE_UNC	Uncertainty in the stand age measurement date	days
SA_COMMENT	Stand age comments	free text

DBH	Tree diameter at breast height (DBH)	cm
DBH_SPP	Tree diameter at breast height (DBH) species (taxa)	Scientific name
DBH_VEGTYPE	Tree diameter at breast height (DBH) vegetation type	LIST(VEGTYPE)
DBH_STATISTIC	Tree diameter at breast height (DBH) statistic	LIST(STATISTIC)
DBH_STATISTIC_TYPE	Tree diameter at breast height (DBH) statistic type	LIST(STATISTIC_TYPE)
DBH_STATISTIC_NUMBER	Number of observations used to determine tree diameter at breast height (DBH) statistic	integer number
DBH_HEIGHT	Mean height at which tree diameter at breast height (DBH) was measured	m
DBH_MIN	Minimum tree size (diameter) threshold for tree diameter at breast height (DBH) measurement	cm
DBH_APPROACH	Tree diameter at breast height (DBH) approach	free text
DBH_DATE	Diameter at Breast Height measurement date	YYYYMMDDHHMM
DBH_DATE_START	Start date of tree diameter at breast height (DBH) measurement	YYYYMMDDHHMM
DBH_DATE_END	End date of tree diameter at breast height (DBH) measurement	YYYYMMDDHHMM
DBH_DATE_UNC	Uncertainty in the tree diameter at breast height (DBH) measurement date, start date, and/or end date	days
DBH_COMMENT	Tree diameter at breast height (DBH) comments	free text
BASAL_AREA	Basal area	m <sup>2</sup> ha <sup>-1</sup>
BASAL_AREA_SPP	Basal area species (taxa)	Scientific name
BASAL_AREA_VEGTYPE	Basal area vegetation type	LIST(VEGTYPE)
BASAL_AREA_STATISTIC	Basal area statistic	LIST(STATISTIC)
BASAL_AREA_STATISTIC_TYPE	Basal area statistic type	LIST(STATISTIC_TYPE)
BASAL_AREA_STATISTIC_NUMBER	Number of observations used to determine basal area statistic	integer number
BASAL_AREA_DBH_MIN	Minimum tree size (diameter) threshold for basal area measurement	cm
BASAL_AREA_APPROACH	Basal Area measurement approach	free text
BASAL_AREA_DATE	Basal Area measurement date	YYYYMMDDHHMM
BASAL_AREA_DATE_START	Start date of basal area measurement	YYYYMMDDHHMM

BASAL_AREA_DATE_END	End date of basal area measurment	YYYYMMDDHHMM
BASAL_AREA_DATE_UNC	Uncertainty in the basal area measurement date, start date, and/or end date	days
BASAL_AREA_COMMENT	Basal area comments	free text
TREES_NUM	Number of trees per hectare	trees ha-1
TREES_NUM_SPP	Number of trees per hectare species (taxa)	Scientific name
TREES_NUM_VEGTYPE	Number of trees per hectare vegetation type	LIST(VEGTYPE)
TREES_NUM_STATISTIC	Number of trees per hectare statistic	LIST(STATISTIC)
TREES_NUM_STATISTIC_TYPE	Number of trees per hectare statistic type	LIST(STATISTIC_TYPE)
TREES_NUM_STATISTIC_NUMBER	Number of observations used to determine number of trees per hectare statistic	integer number
TREES_NUM_DBH_MIN	Minimum tree size (diameter) threshold for the number of trees per hectare measurement	cm
TREES_NUM_APPROACH	Number of trees per hectare approach	free text
TREES_NUM_DATE	Number of trees per hectare measurement date	YYYYMMDDHHMM
TREES_NUM_DATE_START	Start date of number of trees per hectare measurment	YYYYMMDDHHMM
TREES_NUM_DATE_END	End date of number of trees per hectare measurment	YYYYMMDDHHMM
TREES_NUM_DATE_UNC	Uncertainty in the number of trees per hectare measurement date, start date, and/or end date	days
TREES_NUM_COMMENT	Number of trees per hectare comments	free text
ROOT_DEPTH	Root depth	cm
ROOT_DEPTH_SPP	Root depth species (taxa)	Scientific name
ROOT_DEPTH_VEGTYPE	Root depth vegetation type	LIST(VEGTYPE)
ROOT_DEPTH_STATISTIC	Root depth statistic	LIST(STATISTIC)
ROOT_DEPTH_STATISTIC_TYPE	Root depth statistic type	LIST(STATISTIC_TYPE)
ROOT_DEPTH_STATISTIC_NUMBER	Number of observations used to determine root depth statistic	integer number
ROOT_DEPTH_APPROACH	Root depth measurement approach	free text
ROOT_DEPTH_DATE	Root depth measurement date	YYYYMMDDHHMM
ROOT_DEPTH_DATE_START	Start date of root depth measurment	YYYYMMDDHHMM
ROOT_DEPTH_DATE_END	End date of root depth measurment	YYYYMMDDHHMM



ROOT_DEPTH_DATE_UNC	Uncertainty in the root depth measurement date, start date, and/or end date	days
ROOT_DEPTH_COMMENT	Root depth comments	free text
PHEN_EVENT_TYPE	Phenology event type	LIST(PHEN_EVENT)
PHEN_EVENT_STATUS	Phenology event status	LIST(PHEN_STATUS)
PHEN_EVENT_SPP	Phenology event species (taxa)	Scientific name
PHEN_EVENT_VEGTYPE	Phenology event vegetation type	LIST(VEGTYPE)
PHEN_EVENT_DATE	Phenology event date (or days if reporting variability or uncertainty)	YYYYMMDDHHMM or days
PHEN_EVENT_DATE_STATISTIC	Phenology event date statistic	LIST(STATISTIC)
PHEN_EVENT_DATE_STATISTIC_TYPE	Phenology event date statistic type	LIST(STATISTIC_TYPE)
PHEN_EVENT_DATE_STATISTIC_NUMBER	Number of observations used to determine phenology event date statistic	integer number
PHEN_EVENT_APPROACH	Phenology event observation approach	free text
PHEN_EVENT_COMMENT	Phenology event comments	free text

Table 4: LIST options available for variables with controlled vocabulary

LIST GROUP	LIST OPTION	DESCRIPTION
LIST(BM_INST)	H2O_LEVEL-Float	Water table depth, floating sensor
LIST(BM_INST)	H2O_LEVEL-Manual	Water table depth, manual system
LIST(BM_INST)	H2O_LEVEL-Press	Water table depth, pressure sensor
LIST(BM_INST)	PBLH-Ceilometer	Planetary boundary layer height, Ceilometer
LIST(BM_INST)	PREC-OpticGauge	Precipitation, Optical raingauge
LIST(BM_INST)	PREC-Other	Precipitation, Other
LIST(BM_INST)	PREC-TipBucGauge	Precipitation, Tipping bucket raingauge
LIST(BM_INST)	PREC-WeightGauge	Precipitation, Weighing raingauge
LIST(BM_INST)	PRES-AnerBar	Atmospheric Pressure, Aneroid barometer
LIST(BM_INST)	PRES-ElectBar	Atmospheric Pressure, Electronic barometer
LIST(BM_INST)	PRES-MgBar	Atmospheric Pressure, Mercury barometer
LIST(BM_INST)	PRES-Other	Atmospheric Pressure, Other
LIST(BM_INST)	RAD-4C-KZCNR1	Radiation, Four component radiometer - Kipp and Zonen CNR1
LIST(BM_INST)	RAD-4C-KZCNR4	Radiation, Four component radiometer - Kipp and Zonen CNR4
LIST(BM_INST)	RAD-4C-Other	Radiation, Four component radiometer - Others

LIST(BM_INST)	RAD-Direct SW Pyrhelium	Radiation, Pyreheliometer (measure direct SW)
LIST(BM_INST)	RAD-LW Pyrgeom	Radiation, Pyrgeometer (measure only LW)
LIST(BM_INST)	RAD-Net radiometer	Radiation, Net radiometer (measures only net radiation)
LIST(BM_INST)	RAD-Other	Radiation, Other
LIST(BM_INST)	RAD-PAR Quantum	Radiation, Quantum sensor (measure PAR)
LIST(BM_INST)	RAD-Pyrrad-SW+LW	Radiation, Pyrradiometer (measure both SW and LW)
LIST(BM_INST)	RAD-SW Pyran Class1	Radiation, Pyranometer (measure only SW) - Class1 WMO
LIST(BM_INST)	RAD-SW Pyran Class2	Radiation, Pyranometer (measure only SW) - Class2 WMO
LIST(BM_INST)	RAD-SW Pyran SecSt	Radiation, Pyranometer (measure only SW) - Secondary standard WMO
LIST(BM_INST)	RH-Capac	Air Relative Humidity, Capacitive sensor
LIST(BM_INST)	RH-DewP	Air Relative Humidity, Dew point hygrometer
LIST(BM_INST)	RH-ElecRes	Air Relative Humidity, Electrical resistive hygrometer
LIST(BM_INST)	RH-EM_abs	Air Relative Humidity, Electromagnetic radiation absorption hygrometer
LIST(BM_INST)	RH-Grav	Air Relative Humidity, Gravimetric hygrometer
LIST(BM_INST)	RH-HairHy	Air Relative Humidity, Hair hygrometer
LIST(BM_INST)	RH-LithChl	Air Relative Humidity, Lithium chloride heated condensation hygrometer
LIST(BM_INST)	RH-Other	Air Relative Humidity, Other
LIST(BM_INST)	RH-Psychr	Air Relative Humidity, Psychrometer
LIST(BM_INST)	SNOW-Acoustic	Snow depth, Acoustic distance sensor
LIST(BM_INST)	SNOW-AutoGradScale	Snow depth, Graduated scale (automatically read, includign camera)
LIST(BM_INST)	SNOW-ManualGradScale	Snow depth, Graduated scale (manually read)
LIST(BM_INST)	SNOW-Optical	Snow depth, Opto-electronic distance sensor
LIST(BM_INST)	SNOW-Other	Snowfall or snow depth, Other
LIST(BM_INST)	SNOW-Radio_isotop	Snowfall, Radioisotope snowgauges
LIST(BM_INST)	SNOW-SnowPillow	Snowfall, Snow pillow
LIST(BM_INST)	SNOW-SnowTube	Snowfall, Snow tube
LIST(BM_INST)	SOIL_H-Plate	Soil Heat Flux plate
LIST(BM_INST)	SOIL_H-Plate_AUTO	Soil Heat Flux plate, Autocalibrated
LIST(BM_INST)	SWC-FDR	Soil Water Content, Frequency domain reflectometry
LIST(BM_INST)	SWC-Other	Soil Water Content, Other
LIST(BM_INST)	SWC-Radio	Soil Water Content, Radiological method

LIST(BM_INST)	SWC-TDR	Soil Water Content, Time domain reflectometry
LIST(BM_INST)	TEMP-ElectResis	Temperature, Electrical resistance thermometer
LIST(BM_INST)	TEMP-ElectResis-10DIN	Temperature, Electrical resistance thermometer 1/10 DIN precision
LIST(BM_INST)	TEMP-ElectResis-3DIN	Temperature, Electrical resistance thermometer 1/3 DIN precision
LIST(BM_INST)	TEMP-IC	Temperature, Integrated Circuit sensor
LIST(BM_INST)	TEMP-Other	Temperature, Other
LIST(BM_INST)	TEMP-TCouple	Temperature, Thermocouple
LIST(BM_INST)	TEMP-Thermis	Temperature, Thermistor
LIST(BM_INST)	WIND-2DSA	Wind speed and direction, 2D sonic anemometer
LIST(BM_INST)	WIND-3DSA	Wind speed and direction, 3D sonic anemometer
LIST(BM_INST)	WIND-CupAn	Wind speed and direction, cup anemometer
LIST(BM_INST)	WIND-HotWi	Wind speed and direction, hot-wire anemometer
LIST(BM_INST)	WIND-Other	Wind speed and direction, Other
LIST(BM_INST)	WIND-VaneAn	Wind speed and direction, vane anemometer
LIST(BM_ORGAN)	Branches	
LIST(BM_ORGAN)	Coarse Roots	
LIST(BM_ORGAN)	Fine Roots	
LIST(BM_ORGAN)	Flowers	
LIST(BM_ORGAN)	Foliage	
LIST(BM_ORGAN)	Fruits	Includes seeds if in the fruits
LIST(BM_ORGAN)	Other	Use only if none of the other options can be used and clarify in the comments
LIST(BM_ORGAN)	Roots	Total of roots
LIST(BM_ORGAN)	Seeds	
LIST(BM_ORGAN)	Stems	Only for herbaceous
LIST(BM_ORGAN)	Total	Total including above and below ground (all components)
LIST(BM_ORGAN)	Total AG	Total above ground (all components)
LIST(BM_ORGAN)	Total BG	Total below ground (all components)
LIST(BM_ORGAN)	Trunks	
LIST(BM_ORGAN)	Tubers	
LIST(BM_ORGAN)	Wood	Wood including above and below ground
LIST(BM_ORGAN)	Wood AG	Wood Above Ground (includes trunks and branches)
LIST(BM_ORGAN_PHEN)	Green	
LIST(BM_ORGAN_PHEN)	Mixed/Unknown	
LIST(BM_ORGAN_PHEN)	Senescent	

LIST(BM_SHIELDING)	Insulation	
LIST(BM_SHIELDING)	Radiation	
LIST(BM_SHIELDING)	Rain	
LIST(BM_SHIELDING)	Wind Deflector	
LIST(BM_TYPE)	Disturbance	Disturbance to the instrument
LIST(BM_TYPE)	Field calibration	Calibration of an instrument in the field
LIST(BM_TYPE)	Field calibration check	Check of calibration of an instrument in the field
LIST(BM_TYPE)	Field cleaning	Cleaning an instrument or its parts
LIST(BM_TYPE)	Firmware update	Firmware update
LIST(BM_TYPE)	General comment	Use this to report a general comment not fitting with the other options
LIST(BM_TYPE)	Installation	Installation of the instrument in the field
LIST(BM_TYPE)	Maintenance	General maintenance of instrument
LIST(BM_TYPE)	Parts substitution	Replacement of parts of instruments
LIST(BM_TYPE)	Removal	Removal of an instrument from the station
LIST(BM_TYPE)	Variable map	Mapping of the instrument to one variable
LIST(EC_INST)	GA_CP-LI-COR LI-7200	Gas Analyzer, Closed Path, LI-COR LI-7200
LIST(EC_INST)	GA_CP-LI-COR LI-7200RS	Gas Analyzer, Closed Path, LI-COR LI-7200RS
LIST(EC_INST)	SA-Gill HS-100	Sonic Anemometer - Gill HS-100
LIST(EC_INST)	SA-Gill HS-50	Sonic Anemometer - Gill HS-50
LIST(EC_TYPE)	Disturbance	Disturbance to the instrument
LIST(EC_TYPE)	Field calibration	Calibration of an instrument in the field (adjust parameters)
LIST(EC_TYPE)	Field calibration check	Check of calibration of an instrument in the field
LIST(EC_TYPE)	Field cleaning	Cleaning an instrument or its parts
LIST(EC_TYPE)	Filter change	Change of the filter in the tube
LIST(EC_TYPE)	Firmware update	Firmware update
LIST(EC_TYPE)	General comment	Use this to report a general comment not fitting with the other options
LIST(EC_TYPE)	Installation	Installation of the instrument in the field
LIST(EC_TYPE)	Maintenance	General maintenance of instrument
LIST(EC_TYPE)	Parts substitution	Replacement of parts of instruments
LIST(EC_TYPE)	Removal	Removal of an instrument from the station
LIST(INST_FACTORY)	Factory calibration	Calibration of instrument by sending to the factory
LIST(INST_FACTORY)	Factory repair	Repair of damages to the instrument at the factory
LIST(INST_FACTORY)	Own calibration	Calibration of instrument made without sending it to the factory (includes lab and field calibration)

LIST(INST_FACTORY)	Own repair	Repair of damages to the instrument made without sending it to the factory. Use this also for firmware update.
LIST(INST_FACTORY)	Purchase	Purchase of the sensor
LIST(INST_MODEL)	DL-CR1000	Datalogger, Campbell Scientific CR1000
LIST(INST_MODEL)	DL-CR1000	Datalogger, Campbell Scientific CR1000
LIST(INST_MODEL)	DL-CR1000X	Datalogger, Campbell Scientific CR1000X
LIST(INST_MODEL)	DL-CR1000X	Datalogger, Campbell Scientific CR1000X
LIST(INST_MODEL)	DL-CR10X	Datalogger, Campbell Scientific CR10X
LIST(INST_MODEL)	DL-CR10X	Datalogger, Campbell Scientific CR10X
LIST(INST_MODEL)	DL-CR300	Datalogger, Campbell Scientific CR300
LIST(INST_MODEL)	DL-CR300	Datalogger, Campbell Scientific CR300
LIST(INST_MODEL)	DL-CR3000	Datalogger, Campbell Scientific CR3000
LIST(INST_MODEL)	DL-CR3000	Datalogger, Campbell Scientific CR3000
LIST(INST_MODEL)	DL-CR310	Datalogger, Campbell Scientific CR310
LIST(INST_MODEL)	DL-CR310	Datalogger, Campbell Scientific CR310
LIST(INST_MODEL)	DL-CR5000	Datalogger, Campbell Scientific CR5000
LIST(INST_MODEL)	DL-CR5000	Datalogger, Campbell Scientific CR5000
LIST(INST_MODEL)	DL-CR6	Datalogger, Campbell Scientific CR6
LIST(INST_MODEL)	DL-CR6	Datalogger, Campbell Scientific CR6
LIST(INST_MODEL)	DL-CR800	Datalogger, Campbell Scientific CR800
LIST(INST_MODEL)	DL-CR800	Datalogger, Campbell Scientific CR800
LIST(INST_MODEL)	DL-CR850	Datalogger, Campbell Scientific CR850
LIST(INST_MODEL)	DL-CR850	Datalogger, Campbell Scientific CR850
LIST(INST_MODEL)	DL-CR9000X	Datalogger, Campbell Scientific CR9000X
LIST(INST_MODEL)	DL-CR9000X	Datalogger, Campbell Scientific CR9000X
LIST(INST_MODEL)	DL-ISDL3	Datalogger, INSITU ISDL-3
LIST(INST_MODEL)	DL-ISDL3	Datalogger, INSITU ISDL-3
LIST(INST_MODEL)	DL-Other	Datalogger, Other
LIST(INST_MODEL)	DL-Other	Datalogger, Other
LIST(INST_MODEL)	DL-PC	Datalogger, Personal computer

LIST(INST_MODEL)	DL-PC	Datalogger, Personal computer
LIST(INST_MODEL)	DL-SFlux2	Datalogger, LICOR SmartFlux2
LIST(INST_MODEL)	DL-SFlux2	Datalogger, LICOR SmartFlux2
LIST(INST_MODEL)	GA_AIU-LI-COR LI-7550	Auxiliar interface unit of the GA, LI-COR LI-7550
LIST(INST_MODEL)	GA_CP-Aerodyne	Gas Analyzer, Closed Path Fast Response, Aerodyne
LIST(INST_MODEL)	GA_CP-Campbell EC155	Gas Analyzer, Closed Path, Campbell EC155
LIST(INST_MODEL)	GA_CP-LGR 911-0001	Gas Analyzer, Closed Path, Los Gatos Research 911-0001
LIST(INST_MODEL)	GA_CP-LGR 911-0010	Gas Analyzer, Closed Path, Los Gatos Research 911-0010
LIST(INST_MODEL)	GA_CP-LGR 911-0020	Gas Analyzer, Closed Path, Los Gatos Research 911-0020
LIST(INST_MODEL)	GA_CP-LGR 913-0014	Gas Analyzer, Closed Path, Los Gatos Research 913-0014
LIST(INST_MODEL)	GA_CP-LGR 913-0029	Gas Analyzer, Closed Path, Los Gatos Research 913-0029
LIST(INST_MODEL)	GA_CP-LGR 913-1054	Gas Analyzer, Closed Path, Los Gatos Research 913-1054
LIST(INST_MODEL)	GA_CP-LGR 914-0028	Gas Analyzer, Closed Path, Los Gatos Research 914-0028
LIST(INST_MODEL)	GA_CP-LGR 914-1012	Gas Analyzer, Closed Path, Los Gatos Research 914-1012
LIST(INST_MODEL)	GA_CP-LGR Other	Gas Analyzer, Closed Path, Los Gatos Research Other Model
LIST(INST_MODEL)	GA_CP-LGR RMT-200	Gas Analyzer, Closed Path, Los Gatos Research RMT-200
LIST(INST_MODEL)	GA_CP-LI-COR LI-6262	Gas Analyzer, Closed Path, LI-COR LI-6262
LIST(INST_MODEL)	GA_CP-LI-COR LI-7000	Gas Analyzer, Closed Path, LI-COR LI-7000
LIST(INST_MODEL)	GA_CP-LI-COR LI-7200	Gas Analyzer, Closed Path, LI-COR LI-7200
LIST(INST_MODEL)	GA_CP-LI-COR LI-7200RS	Gas Analyzer, Closed Path, LI-COR LI-7200RS
LIST(INST_MODEL)	GA_CP-Other	Gas Analyzer, Closed Path Fast Response - Other
LIST(INST_MODEL)	GA_CP-Picarro G1301-f	Gas Analyzer, Closed Path, Picarro G1301-f
LIST(INST_MODEL)	GA_CP-Picarro G2301-f	Gas Analyzer, Closed Path, Picarro G2301-f
LIST(INST_MODEL)	GA_CP-Picarro G2311-f	Gas Analyzer, Closed Path, Picarro G2311-f
LIST(INST_MODEL)	GA_CP-Picarro Other	Gas Analyzer, Closed Path, Picarro Other Model
LIST(INST_MODEL)	GA_FLOW_CONTR-other	Flow controller (if LI-7200-101 is not used)
LIST(INST_MODEL)	GA_FM-LI-COR LI-7200-101	Flow module LI-COR LI-7200-101

LIST(INST_MODEL)	GA_FM-other	Flow module (if LI-7200-101 is not used)
LIST(INST_MODEL)	GA_OP_SA-Campbell IRGASON	Gas Analyzer, Open Path with Sonic Anemometer, Campbell IRGASON
LIST(INST_MODEL)	GA_OP-Campbell EC150	Gas Analyzer, Open Path, Campbell EC150
LIST(INST_MODEL)	GA_OP-Campbell TGA100	Gas Analyzer, Closed Path, Campbell TGA100
LIST(INST_MODEL)	GA_OP-Campbell TGA200A	Gas Analyzer, Closed Path, Campbell TGA200A
LIST(INST_MODEL)	GA_OP-Krypton Hygrometer	Gas Analyzer, Open Path, Krypton Hygrometer
LIST(INST_MODEL)	GA_OP-LI-COR LI-7500	Gas Analyzer, Open Path, LI-COR LI-7500
LIST(INST_MODEL)	GA_OP-LI-COR LI-7500A	Gas Analyzer, Open Path, LI-COR LI-7500A
LIST(INST_MODEL)	GA_OP-LI-COR LI-7500DS	Gas Analyzer, Open Path, LI-COR LI-7500DS
LIST(INST_MODEL)	GA_OP-LI-COR LI-7500RS	Gas Analyzer, Open Path, LI-COR LI-7500RS
LIST(INST_MODEL)	GA_OP-LI-COR LI-7700	Gas Analyzer, Open Path, LI-COR LI-7700
LIST(INST_MODEL)	GA_OP-Lyman-alpha Hygrometer	Gas Analyzer, Open Path, Lyman-alpha Hygrometer
LIST(INST_MODEL)	GA_OP-Other	Gas Analyzer, Open Path Fast Response - Other
LIST(INST_MODEL)	GA_PUMP-other	Pump for GA (if LI-7200-101 is not used)
LIST(INST_MODEL)	GA_SR-LI-COR LI-800	Gas Analyzer, Slow Response, LI-COR LI-800
LIST(INST_MODEL)	GA_SR-LI-COR LI-8100	Gas Analyzer, Slow Response, LI-COR LI-8100
LIST(INST_MODEL)	GA_SR-LI-COR LI-8100A	Gas Analyzer, Slow Response, LI-COR LI-8100A
LIST(INST_MODEL)	GA_SR-LI-COR LI-820	Gas Analyzer, Slow Response, LI-COR LI-820
LIST(INST_MODEL)	GA_SR-LI-COR LI-830	Gas Analyzer, Slow Response, LI-COR LI-830
LIST(INST_MODEL)	GA_SR-LI-COR LI-840	Gas Analyzer, Slow Response, LI-COR LI-840
LIST(INST_MODEL)	GA_SR-LI-COR LI-840A	Gas Analyzer, Slow Response, LI-COR LI-840A
LIST(INST_MODEL)	GA_SR-LI-COR LI-850	Gas Analyzer, Slow Response, LI-COR LI-850
LIST(INST_MODEL)	GA_SR-Picarro G2401	Gas Analyzer, Slow Response, Picarro G2401
LIST(INST_MODEL)	GA-Other	Gas Analyzer, Slow Response - Other
LIST(INST_MODEL)	H2O_LEVEL-Float	Water table depth, floating sensor
LIST(INST_MODEL)	H2O_LEVEL-Manual	Water table depth, manual system
LIST(INST_MODEL)	H2O_LEVEL-Press	Water table depth, pressure sensor
LIST(INST_MODEL)	PBLH-Ceilometer	Planetary boundary layer height, Ceilometer

LIST(INST_MODEL)	PREC-OpticGauge	Precipitation, Optical raingauge
LIST(INST_MODEL)	PREC-Other	Precipitation, Other
LIST(INST_MODEL)	PREC-TipBucGauge	Precipitation, Tipping bucket raingauge
LIST(INST_MODEL)	PREC-WeightGauge	Precipitation, Weighing raingauge
LIST(INST_MODEL)	PRES-AnerBar	Atmospheric Pressure, Aneroid barometer
LIST(INST_MODEL)	PRES-ElectBar	Atmospheric Pressure, Electronic barometer
LIST(INST_MODEL)	PRES-MgBar	Atmospheric Pressure, Mercury barometer
LIST(INST_MODEL)	PRES-Other	Atmospheric Pressure, Other
LIST(INST_MODEL)	RAD-4C-KZCNR1	Radiation, Four component radiometer - Kipp and Zonen CNR1
LIST(INST_MODEL)	RAD-4C-KZCNR4	Radiation, Four component radiometer - Kipp and Zonen CNR4
LIST(INST_MODEL)	RAD-4C-Other	Radiation, Four component radiometer - Others
LIST(INST_MODEL)	RAD-Direct SW Pyrhelium	Radiation, Pyreheliometer (measure direct SW)
LIST(INST_MODEL)	RAD-LW Pyrgeom	Radiation, Pyrgeometer (measure only LW)
LIST(INST_MODEL)	RAD-Net radiometer	Radiation, Net radiometer (measures only net radiation)
LIST(INST_MODEL)	RAD-Other	Radiation, Other
LIST(INST_MODEL)	RAD-PAR Quantum	Radiation, Quantum sensor (measure PAR)
LIST(INST_MODEL)	RAD-Pyrrad-SW+LW	Radiation, Pyrradiometer (measure both SW and LW)
LIST(INST_MODEL)	RAD-SW Pyran Class1	Radiation, Pyranometer (measure only SW) - Class1 WMO
LIST(INST_MODEL)	RAD-SW Pyran Class2	Radiation, Pyranometer (measure only SW) - Class2 WMO
LIST(INST_MODEL)	RAD-SW Pyran SecSt	Radiation, Pyranometer (measure only SW) - Secondary standard WMO
LIST(INST_MODEL)	RH-Capac	Air Relative Humidity, Capacitive sensor
LIST(INST_MODEL)	RH-DewP	Air Relative Humidity, Dew point hygrometer
LIST(INST_MODEL)	RH-ElecRes	Air Relative Humidity, Electrical resistive hygrometer
LIST(INST_MODEL)	RH-EM_abs	Air Relative Humidity, Electromagnetic radiation absorption hygrometer
LIST(INST_MODEL)	RH-Grav	Air Relative Humidity, Gravimetric hygrometer
LIST(INST_MODEL)	RH-HairHy	Air Relative Humidity, Hair hygrometer
LIST(INST_MODEL)	RH-LithChl	Air Relative Humidity, Lithium chloride heated condensation hygrometer
LIST(INST_MODEL)	RH-Other	Air Relative Humidity, Other
LIST(INST_MODEL)	RH-Psychr	Air Relative Humidity, Psychrometer
LIST(INST_MODEL)	SA-Gill HS-100	Sonic Anemometer - Gill HS-100



LIST(INST_MODEL)	SA-Gill HS-50	Sonic Anemometer - Gill HS-50
LIST(INST_MODEL)	SNOW-Acoustic	Snow depth, Acoustic distance sensor
LIST(INST_MODEL)	SNOW-AutoGradScale	Snow depth, Graduated scale (automatically read, includign camera)
LIST(INST_MODEL)	SNOW-ManualGradScale	Snow depth, Graduated scale (manually read)
LIST(INST_MODEL)	SNOW-Optical	Snow depth, Opto-electronic distance sensor
LIST(INST_MODEL)	SNOW-Other	Snowfall, Other
LIST(INST_MODEL)	SNOW-Radio_isotop	Snowfall, Radioisotope snowgauges
LIST(INST_MODEL)	SNOW-SnowPillow	Snowfall, Snow pillow
LIST(INST_MODEL)	SNOW-SnowTube	Snowfall, Snow tube
LIST(INST_MODEL)	SOIL_H-Plate	Soil Heat Flux plate
LIST(INST_MODEL)	SOIL_H-Plate_AUTO	Soil Heat Flux plate, Autocalibrated
LIST(INST_MODEL)	SWC-FDR	Soil Water Content, Frequency domain reflectometry
LIST(INST_MODEL)	SWC-Other	Soil Water Content, Other
LIST(INST_MODEL)	SWC-Radio	Soil Water Content, Radiological method
LIST(INST_MODEL)	SWC-TDR	Soil Water Content, Time domain reflectometry
LIST(INST_MODEL)	TEMP-ElectResis	Temperature, Electrical resistance thermometer
LIST(INST_MODEL)	TEMP-ElectResis-10DIN	Temperature, Electrical resistance thermometer 1/10 DIN precision
LIST(INST_MODEL)	TEMP-ElectResis-3DIN	Temperature, Electrical resistance thermometer 1/3 DIN precision
LIST(INST_MODEL)	TEMP-IC	Temperature, Integrated Circuit sensor
LIST(INST_MODEL)	TEMP-Other	Temperature, Other
LIST(INST_MODEL)	TEMP-TCouple	Temperature, Thermocouple
LIST(INST_MODEL)	TEMP-Thermis	Temperature, Thermistor
LIST(INST_MODEL)	WIND-2DSA	Wind speed and direction, 2D sonic anemometer
LIST(INST_MODEL)	WIND-3DSA	Wind speed and direction, 3D sonic anemometer
LIST(INST_MODEL)	WIND-CupAn	Wind speed and direction, cup anemometer
LIST(INST_MODEL)	WIND-HotWi	Wind speed and direction, hot-wire anemometer
LIST(INST_MODEL)	WIND-Other	Wind speed and direction, Other
LIST(INST_MODEL)	WIND-VaneAn	Wind speed and direction, vane anemometer
LIST(LAI_CANOPY_TYPE)	Overstory	Overstory canopy
LIST(LAI_CANOPY_TYPE)	Total	Total canopy. Use for non-forest ecosystems or for forest ecosystem if not reporting Overstory and Understory measurement.
LIST(LAI_CANOPY_TYPE)	Understory	Understory canopy
LIST(LAI_METHOD)	ACCUPAR	AccUPAR from Decagon Devices
LIST(LAI_METHOD)	Direct	

LIST(LAI_METHOD)	Hemispherical photo	Analog or digital hemispherical photography (DHP)
LIST(LAI_METHOD)	LAI_2000	LI-COR LI-2000
LIST(LAI_METHOD)	LAI_2200	LI-COR LI-2200
LIST(LAI_METHOD)	Lidar	Use LAI_APPROACH to describe details of Lidar method used
LIST(LAI_METHOD)	Litterfall	Collection of leaves in litterfall traps
LIST(LAI_METHOD)	Other	Use LAI_APPROACH to describe the method used
LIST(LAI_METHOD)	SPECTRAL	Relation between spectral reflectance and direct measurements
LIST(LAI_METHOD)	SUNSCAN	SunScan from Delta-T Devices
LIST(LAI_TYPE)	GAI	Green Area Index (includes only green leaves)
LIST(LAI_TYPE)	LAI	Leaf Area Index (includes all the leaves)
LIST(LAI_TYPE)	PAI	Plant Area Index (includes leaves, stems and other parts of the plants)
LIST(PHEN_EVENT)	BudBreak	
LIST(PHEN_EVENT)	Cotyledons	
LIST(PHEN_EVENT)	Flowering	
LIST(PHEN_EVENT)	Leaf senescence	
LIST(PHEN_EVENT)	Maximum leaf expansion	
LIST(PHEN_EVENT)	Total leaf-off	
LIST(PHEN_STATUS)	End	The event is no longer occurring (except natural outliers).
LIST(PHEN_STATUS)	Other	
LIST(PHEN_STATUS)	Peak	The event reached the maximum level and it has occurred in 90% of the expected cases.
LIST(PHEN_STATUS)	Start	The event has occurred in 5% of the expected cases (5% of plants, leaves, etc).
LIST(STATISTIC)	10th Percentile	Quantile at 10% of distribution
LIST(STATISTIC)	1st Percentile	Quantile at 1% of distribution
LIST(STATISTIC)	25th Percentile	Quantile at 25% of distribution
LIST(STATISTIC)	5th Percentile	Quantile at 5% of distribution
LIST(STATISTIC)	75th Percentile	Quantile at 75% of distribution
LIST(STATISTIC)	90th Percentile	Quantile at 90% of distribution
LIST(STATISTIC)	95th Percentile	Quantile at 95% of distribution
LIST(STATISTIC)	99th Percentile	Quantile at 99% of distribution
LIST(STATISTIC)	Expert estimate	Estimate made by expert familiar with site
LIST(STATISTIC)	Maximum	Maximum value
LIST(STATISTIC)	Mean	Average (mean) value of sample population

LIST(STATISTIC)	Measurement Uncertainty	Report uncertainty as a plus or minus value in the measurement units. For example, enter 1.5 for +/- 1.5 units. Uncertainty may be reported from the instrument's specifications, determined empirically, or estimated by the tower team. Please describe such details in Approach. For uncertainty values that are better described by a range, a percent, or other, please enter information in Comments.
LIST(STATISTIC)	Median - 50th Percentile	Median - Quantile at 50% of distribution
LIST(STATISTIC)	Minimum	Minimum value
LIST(STATISTIC)	Single observation	Single observation
LIST(STATISTIC)	Standard Deviation	Standard deviation may be reported from a sample population that consists of individual or aggregated samples (observations). If the distinction is important, specify in Comments.
LIST(STATISTIC_TYPE)	Observations / Samples	The statistic indicated is derived from a sample population of observations (or replicates). The statistic does not specifically represent spatial or temporal components of the sample population.
LIST(STATISTIC_TYPE)	Spatial	The statistic indicated is a metric that describes the spatial component of the sample population. For example, use spatial for the standard deviation of samples (observations) that represents different locations at the site for the same time period.
LIST(STO_CONFIG)	Separate	Separate sampling with multiple sensors (Option A)
LIST(STO_CONFIG)	Sequential	Sequential sampling with a single sensor (Option B)
LIST(STO_CONFIG)	Simultaneous	Simultaneous sampling with single sensor and mixing (Option C)
LIST(STO_INST)	GA_CP-Aerodyne	Gas Analyzer, Closed Path Fast Response, Aerodyne
LIST(STO_INST)	GA_CP-Campbell EC155	Gas Analyzer, Closed Path, Campbell EC155
LIST(STO_INST)	GA_CP-LGR 911-0001	Gas Analyzer, Closed Path, Los Gatos Research 911-0001
LIST(STO_INST)	GA_CP-LGR 911-0010	Gas Analyzer, Closed Path, Los Gatos Research 911-0010

LIST(STO_INST)	GA_CP-LGR 911-0020	Gas Analyzer, Closed Path, Los Gatos Research 911-0020
LIST(STO_INST)	GA_CP-LGR 913-0014	Gas Analyzer, Closed Path, Los Gatos Research 913-0014
LIST(STO_INST)	GA_CP-LGR 913-0029	Gas Analyzer, Closed Path, Los Gatos Research 913-0029
LIST(STO_INST)	GA_CP-LGR 913-1054	Gas Analyzer, Closed Path, Los Gatos Research 913-1054
LIST(STO_INST)	GA_CP-LGR 914-0028	Gas Analyzer, Closed Path, Los Gatos Research 914-0028
LIST(STO_INST)	GA_CP-LGR 914-1012	Gas Analyzer, Closed Path, Los Gatos Research 914-1012
LIST(STO_INST)	GA_CP-LGR Other	Gas Analyzer, Closed Path, Los Gatos Research Other Model
LIST(STO_INST)	GA_CP-LGR RMT-200	Gas Analyzer, Closed Path, Los Gatos Research RMT-200
LIST(STO_INST)	GA_CP-LI-COR LI-6262	Gas Analyzer, Closed Path, LI-COR LI-6262
LIST(STO_INST)	GA_CP-LI-COR LI-7000	Gas Analyzer, Closed Path, LI-COR LI-7000
LIST(STO_INST)	GA_CP-LI-COR LI-7200	Gas Analyzer, Closed Path, LI-COR LI-7200
LIST(STO_INST)	GA_CP-LI-COR LI-7200RS	Gas Analyzer, Closed Path, LI-COR LI-7200RS
LIST(STO_INST)	GA_CP-Other	Gas Analyzer, Closed Path Fast Response - Other
LIST(STO_INST)	GA_CP-Picarro G1301-f	Gas Analyzer, Closed Path, Picarro G1301-f
LIST(STO_INST)	GA_CP-Picarro G2301-f	Gas Analyzer, Closed Path, Picarro G2301-f
LIST(STO_INST)	GA_CP-Picarro G2311-f	Gas Analyzer, Closed Path, Picarro G2311-f
LIST(STO_INST)	GA_CP-Picarro Other	Gas Analyzer, Closed Path, Picarro Other Model
LIST(STO_INST)	GA_OP_SA-Campbell IRGASON	Gas Analyzer, Open Path with Sonic Anemometer, Campbell IRGASON
LIST(STO_INST)	GA_OP-Campbell EC150	Gas Analyzer, Open Path, Campbell EC150
LIST(STO_INST)	GA_OP-Campbell TGA100	Gas Analyzer, Closed Path, Campbell TGA100
LIST(STO_INST)	GA_OP-Campbell TGA200A	Gas Analyzer, Closed Path, Campbell TGA200A
LIST(STO_INST)	GA_OP-Krypton Hygrometer	Gas Analyzer, Open Path, Krypton Hygrometer
LIST(STO_INST)	GA_OP-LI-COR LI-7500	Gas Analyzer, Open Path, LI-COR LI-7500
LIST(STO_INST)	GA_OP-LI-COR LI-7500A	Gas Analyzer, Open Path, LI-COR LI-7500A
LIST(STO_INST)	GA_OP-LI-COR LI-7500DS	Gas Analyzer, Open Path, LI-COR LI-7500DS

LIST(STO_INST)	GA_OP-LI-COR LI-7500RS	Gas Analyzer, Open Path, LI-COR LI-7500RS
LIST(STO_INST)	GA_OP-LI-COR LI-7700	Gas Analyzer, Open Path, LI-COR LI-7700
LIST(STO_INST)	GA_OP-Lyman-alpha Hygrometer	Gas Analyzer, Open Path, Lyman-alpha Hygrometer
LIST(STO_INST)	GA_OP-Other	Gas Analyzer, Open Path Fast Response - Other
LIST(STO_INST)	GA_SR-LI-COR LI-800	Gas Analyzer, Slow Response, LI-COR LI-800
LIST(STO_INST)	GA_SR-LI-COR LI-8100	Gas Analyzer, Slow Response, LI-COR LI-8100
LIST(STO_INST)	GA_SR-LI-COR LI-8100A	Gas Analyzer, Slow Response, LI-COR LI-8100A
LIST(STO_INST)	GA_SR-LI-COR LI-820	Gas Analyzer, Slow Response, LI-COR LI-820
LIST(STO_INST)	GA_SR-LI-COR LI-830	Gas Analyzer, Slow Response, LI-COR LI-830
LIST(STO_INST)	GA_SR-LI-COR LI-840	Gas Analyzer, Slow Response, LI-COR LI-840
LIST(STO_INST)	GA_SR-LI-COR LI-840A	Gas Analyzer, Slow Response, LI-COR LI-840A
LIST(STO_INST)	GA_SR-LI-COR LI-850	Gas Analyzer, Slow Response, LI-COR LI-850
LIST(STO_INST)	GA_SR-Picarro G2401	Gas Analyzer, Slow Response, Picarro G2401
LIST(STO_INST)	GA-Other	Gas Analyzer, Slow Response - Other
LIST(STO_TUBEMAT)	Glass	Glass tube
LIST(STO_TUBEMAT)	Iron	Iron tube
LIST(STO_TUBEMAT)	Other	Other type of tube
LIST(STO_TUBEMAT)	Teflon	Teflon tube
LIST(STO_TUBETHERM)	Heated	Heating installed
LIST(STO_TUBETHERM)	Insulated	Insulation only
LIST(STO_TUBETHERM)	None	No thermal treatment
LIST(STO_TYPE)	Disturbance	Disturbance to the instrument
LIST(STO_TYPE)	Field calibration	Calibration of an instrument in the field (adjust parameters)
LIST(STO_TYPE)	Field calibration check	Check of calibration of an instrument in the field
LIST(STO_TYPE)	Field cleaning	Cleaning an instrument or its parts
LIST(STO_TYPE)	Filter change	Change of the filter in the tube
LIST(STO_TYPE)	Firmware update	Firmware update
LIST(STO_TYPE)	General comment	Use this to report a general comment not fitting with the other options
LIST(STO_TYPE)	Installation	Installation of the instrument in the field
LIST(STO_TYPE)	Maintenance	General maintenance of instrument
LIST(STO_TYPE)	Parts substitution	Replacement of parts of instruments

LIST(STO_TYPE)	Removal	Removal of an instrument from the station
LIST(STO_TYPE)	Tube change	Change of the tube
LIST(STO_VAR)	CH4	Storage flux of CH4
LIST(STO_VAR)	CO2	Storage flux of CO2
LIST(STO_VAR)	H2O	Storage flux of H2O
LIST(STO_VAR)	N2O	Storage flux of N2O
LIST(Team_ROLE)	ADMIN	Administrative
LIST(Team_ROLE)	AFFILIATED	Other affiliated
LIST(Team_ROLE)	CO-PI	co-PI
LIST(Team_ROLE)	DATA	Data manager
LIST(Team_ROLE)	MANAGER	Site Manager
LIST(Team_ROLE)	PI	PI
LIST(Team_ROLE)	SCI	Scientific staff (general)
LIST(Team_ROLE)	SCI-ANC	Scientific staff – expert on ancillary data
LIST(Team_ROLE)	SCI-FLX	Scientific staff – expert on fluxes and meteo
LIST(Team_ROLE)	TEC	Technician (general)
LIST(Team_ROLE)	TEC-ANC	Technician – expert on ancillary data
LIST(Team_ROLE)	TEC-FLX	Technician – expert on fluxes and meteo
LIST(UNIT_BIOMASS)	gC m-2	
LIST(UNIT_BIOMASS)	kgDM m-2	
LIST(UNIT_SPP)	% Area	Percent cover reported as land surface covered by the species or vegetation type per total land surface (i.e., from a top down or bird's eye view). Area totalled across species or vegetation types must sum to less than 100%. Unspecified area, or the difference between the total vegetation area and 100%, will be considered no vegetation (bare ground, water, rock). For forest ecosystems, calculate the area of trees with the area of the tree crown.
LIST(UNIT_SPP)	% Estimated Abundance	Percent cover reported by pindrop or other abundance estimation techniques
LIST(UNIT_SPP)	% Mass	Percent cover reported as dry matter mass of the species or vegetation type per total dry mass
LIST(UNIT_SPP)	% Number	Percent cover reported as number of individuals of the species or vegetation type per total number of individuals
LIST(VAR_CODE)	D_SNOW	Snow depth
LIST(VAR_CODE)	G	Soil heat flux
LIST(VAR_CODE)	LW_IN	LongWave incoming radiation
LIST(VAR_CODE)	LW_OUT	LongWave outgoing radiation
LIST(VAR_CODE)	P	Precipitation

LIST(VAR_CODE)	P_SNOW	Snow Fall
LIST(VAR_CODE)	PA	Air pressure
LIST(VAR_CODE)	PPFD_BC_IN	PPFD below canopy incoming
LIST(VAR_CODE)	PPFD_BC_OUT	PPFD below canopy outgoing
LIST(VAR_CODE)	PPFD_DIF	Photosynthetic photon flux density diffuse
LIST(VAR_CODE)	PPFD_IN	Photosynthetic photon flux density incoming
LIST(VAR_CODE)	PPFD_OUT	Photosynthetic photon flux density outgoing
LIST(VAR_CODE)	RH	Relative humidity
LIST(VAR_CODE)	STEMFLOW	Stem flow
LIST(VAR_CODE)	SW_DIF	ShortWave diffuse radiation
LIST(VAR_CODE)	SW_IN	ShortWave incoming radiation
LIST(VAR_CODE)	SW_OUT	ShortWave outgoing radiation
LIST(VAR_CODE)	SWC	Soil water content
LIST(VAR_CODE)	TA	Air temperature
LIST(VAR_CODE)	THROUGHFALL	Throughfall
LIST(VAR_CODE)	TS	Soil temperature
LIST(VAR_CODE)	WD	Wind direction
LIST(VAR_CODE)	WS	Wind speed
LIST(VAR_CODE)	WTD	Water table depth
LIST(VEGTYPE)	Aerenchymatous Plants	
LIST(VEGTYPE)	Annual Herb / Forb	
LIST(VEGTYPE)	C3 Grass	
LIST(VEGTYPE)	C4 Grass	
LIST(VEGTYPE)	Crop	
LIST(VEGTYPE)	Deciduous Tree	Trees that shed their entire canopy seasonally. Drought or cold avoidance are common reasons for deciduousness.
LIST(VEGTYPE)	Evergreen Tree	Trees that do not seasonally shed their full canopies.
LIST(VEGTYPE)	Grass	
LIST(VEGTYPE)	Grass / Graminoid	Grasses, Sedges, Rushes, and other grass-like monocots (member of order Poales)
LIST(VEGTYPE)	Herb / Forb	
LIST(VEGTYPE)	Herbaceous Crop	
LIST(VEGTYPE)	Liana / vine	
LIST(VEGTYPE)	No vegetation	Bare ground, water, or rock. Use only with SPP_PERC_O and SPP_PERC_U
LIST(VEGTYPE)	Non-vascular	Moss, lichen

LIST(VEGTYPE)	Other/Not in list	Only use this option if a major vegetation group is not included already included in the predefined list. If an existing vegetation group is not specific enough, use the existing vegetation option and add details in Approach (rather than using the "Other/Not in list" option).
LIST(VEGTYPE)	Perennial Herb / Forb	
LIST(VEGTYPE)	Shrub	
LIST(VEGTYPE)	Succulent	Cactus, Euphorbs, including CAM
LIST(VEGTYPE)	Tree	
LIST(VEGTYPE)	Water	Water (perennially submerged ground)
LIST(VEGTYPE)	Woody Crop	