CTFS-ForestGEO Climate Data Sources – Metadata

Table 1. Description of data fields in 'ForestGEO climate data sources.csv' and instructions for updating these.

Column Header	Description	Instructions
Data.set.name	Name describing the data set. Name should be specific enough to uniquely identify the data set	
Site	CTFS-ForestGEO site name. "[ANY SITE]" indicates that data are available for any site globally as part of a gridded data product. If data have been extracted for particular CTFS-ForestGEO sites, these sites are listed specifically in 'ForestGEO climate data sources.csv' (Table 3).	When entering this, please be sure that it matches exactly with existing instances of that site name. If existing instances require correction, please change all.
Variable	Climate variable (listed in Table 2). '(multiple)' is a shorthand indicating that multiple variables are available from the same source. Note that this refers to the property measured (e.g., air temperature) and not the statistics applied to those measurements (e.g., mean annual temperature, max July temperature, frost day frequency).	Select variable from list in Table 2. When entering this, please be sure that it matches exactly with existing instances of that variable name. If variable does not exist, please add it to Table 2. If multiple variables are available, "(multiple)" may be selected; however, best practice is to enter all available variables.
Statistic	Statistic applied to the variable over the data interval.	Enter the statistic applied over the data interval. For instance, temperature is typically averaged over the data interval, whereas precipitation is summed. Note that most meteorological stations measure at high frequency and record averages or sums. If data set records each measurement taken, indicate 'none'.
Data.Interval	Time interval(s) at which data are reported. Note that data may be measured at finer intervals but aggregated to longer intervals based on the statistic reported in the previous column.	Enter the minimum time interval at which data are available. If data summaries exist at longer time intervals, these may also be reported.
Start.Date	Start date for which data are available. Date format is YYYY.MM.DD, YYYY.MM., or YYYY.	Enter start date for which data are available. If older data exist from a different source, this may be indicated in the notes.
End.Date	Most recent date for which data were available at the time the record was created/updated. Date format is YYYY.MM.DD, YYYY.MM., or YYYY.	Enter most recent date for which data are available. If collection is ongoing, that will be indicated in the next column. If newer data exist from a different source, this

Column Header	Description	Instructions
		may be indicated in the notes.
Ongoing?	Whether data collection is ongoing/ expected to continue beyond the end date. Y-yes; N-no.	
Data.Type	Data types: • "Raw"- original measurements (i.e. instrument readings) • "Gap filled/ Corrected"- Secondary data product where missing or bad values have been replaced by estimated values • "Modeled/ Interpolated"- Data not measured onsite, but estimated via modeling/spatial interpolation.	
Gap.Free?	Indicates whether data record contains gaps of any length: Y-yes; N-no	
Source.Type	Indicates source type: • instrument/ meteorological station • gridded data product	Source details will be given in following columns.
<u>For Instrument/ meteorological station records:</u>		
Meteorological.Station.Name.(ID)	Meteorological station name/ ID. This may be either an official name (if applicable) or a simple description.	Provide official name, if one exists. Otherwise, give unofficial name.
latitude	Latitude of meteorological station (in decimal degrees, with + indicating N and - indicating S)	
longitude	Longitude of meteorological station (in decimal degrees, with + indicating E and - indicating W)	
elevation	Elevation of meteorological station (m)	
Instrument.Location	Instrument location relative to forest canopy: • "Above canopy" • "Below top of canopy" • "Multiple heights above/ within/ below canopy" • "Clearing or natural gap" – clearing within forested area • "Non-forested site" –large clearing and/or built environment (e.g., airport meteorological station).	This is a categorical variable; please enter exact match.
Instrument.Distance.From.Plot(km)	Instrument distance from CTFS-ForestGEO plot, in km.	Distance may be approximate (e.g., rounded to zero for instruments adjacent to plot)

Column Header	Description	Instructions
Station.Elevation.Relative.To.Plot	Qualitative description of elevation of the (base of) meteorological station elevation relative to that of CTFS-ForestGEO plot: • within range- within the range of elevations to that CTFS-ForestGEO plot • lower elevation- elevation lower than minimum elevation in CTFS-ForestGEO plot • higher elevation- elevation higher than maximum elevation in CTFS-ForestGEO plot	If exact elevation difference is known, please include in Instrument Location Description.
Instrument.Location.Description	Description of instrument location appropriate for use in a publication, including relevant details not listed elsewhere.	Provide description that would be appropriate for description in a scientific publication.
Instrument.height.or.depth (m)	Instrument height (+ values) or depth (- values) relative to ground surface, in m.	Record if known. This is most important when reporting a height or depth profile.
n.instruments	Number of instruments measuring this variable in this location. May be more than one when there are backup instruments or spatial replication.	Record if known.
instrument.type/model	Instrument type / model	Record if known.
Gridded Data Product Information:		
Gridded.Data.Product.Name	Name of gridded data product (original source)	
Gridded.Data.Product.URL.or.citation	URL and/or citation for gridded data product.	
Gridded.Data.Product.Spatial.Resolution	Spatial resolution of gridded data product.	
Gridded.data.product.notes	Notes on the gridded data product.	
Gridded.data.product.availability	Availability of the original gridded data product.	
Data Product Information:		
Data.Availability	Availability of data product: • open access-freely available for academic research purposes • upon request- data not publically available, but will be shared with any researcher who requests them • unspecified • restricted- data are conditionally available, if at all.	
Data.URL.or.location	If data are available online, provide link. If not, indicate where they are stored.	

Column Header	Description	Instructions
Data.Contact(s)	Name(s), Institution(s), and email(s) for one or more person who can be contacted with data requests or questions. If none is specified, data inquiries should be addressed to the site PI(s).	
Related.Publication(s).or. Metadata	Publication(s) useful for understanding the data set.	
Notes	Any relevant information not included in other fields.	
Record.last.updated	Date of record update.	

Table 2. Variables currently included in the metadata record.

Variables
(multiple)
Air Temperature
Barometric Pressure
Cloud cover
IR Biological Temperature
Potential Evapotranspiration
Precipitation
Radiation: Photosynthetically Active Radiation
Radiation: Shortwave and Longwave radiation (net radiation)
Radiation: Solar (shortwave) radiation
Relative humidity
Snow depth
Snowfall
Soil Heat Flux
Soil temperature
Vapour pressure
Wind speed & direction (2D)

Table 3. Description of data fields in 'ForestGEO_gridded climate data.csv'.

Column Header	Description
Site	CTFS-ForestGEO site name.
[gridded data product name]	1- Data have been extracted for this site and are available as indicated in 'ForestGEO climate data sources.csv'. 0- Data not extracted/ available for this site. Data may be unavailable either because (1) the site is not covered by the data product or (2) the site was added to the CTFS-ForestGEO network after data were extracted.