Historical Climate Data for CTFS-ForestGEO Sites

Source: Anderson-Teixeira *et al.* (2014)

Last updated: August 14, 2014

Data set description:

In order to obtain standardized climate data for all sites, global climate data with 0.5 degree spatial resolution were downloaded from the CGIAR-CSI database (http://www.cgiar-csi.org/data) in January 2014. Specifically, we retrieved monthly data for 1951 – 2012 for ten variables: daily mean temperature (°C), monthly average daily minimum temperature (°C), monthly average daily maximum temperature (°C), diurnal temperature range (°C), frost day frequency (days), precipitation (mm), wet day frequency (days), cloud cover (%), and vapour pressure (hecta-Pascals) from the CRU-TS v3.10.01 Historic Climate Database for GIS (http://www.cgiar-csi.org/data/uea-cru-ts-v3-10-01-historic-climate-database). In addition, potential evapotranspiration (PET; mm day^{-1}) estimates were obtained from the Global Potential Evapo-Transpiration (Global-PET) dataset *(*http://www.cgiar-csi.org/data/global-aridity-and-pet-database*;* Zomer, 2007; Zomer et al., 2008). Monthly data were used to calculate the annual values.

Important note:

Comparison of available local weather station data (Table 2 in Anderson-Teixeira *et al.*, 2014) to CRU data revealed close correlation for MAT (R^2 >94%). However, CRU data tended to systematically underestimate MAP at sites with high MAP, particularly those receiving >3000 mm yr^{-1} (e.g., Korup, Kuala Belalong, Sinharaja, Fushan, La Planada). Thus, **CRU precipitation values for high precipitation sites should be considered probable underestimates.**

Data files:

For each climate variable, both monthly and annual data are available. File names are as follows:

Monthly data files:

- File name: [xxx].[yyyy].2012.csv
    - xxx- three-letter abbreviation for the climate variable in table below
    - yyyy-first year of data record (1901 for tmp, 1951 for all other variables)

Annual data files:

- File name: [xxx]_annual.csv
    - xxx- three-letter abbreviation for the climate variable in table below

Abbreviation	Description	Units- monthly	Units- annual
tmp	Average daily mean temperature	°C	°C
tmn	Average daily minimum temperature	°C	°C
tmx	Average daily maximum temperature	°C	°C
dtr	Diurnal temperature range	°C	°C
frs	Frost day frequency	days mo^{-1}	days yr^{-1}
pre	Precipitation	mm mo^{-1}	mm yr^{-1}
wet	Wet day frequency	days mo^{-1}	days yr^{-1}
cld	Cloud cover	%	%
vap	Vapour pressure	hPa	hPa
pet	Potential evapotranspiration (PET)	mm day^{-1}	mm yr^{-1}

Data file contents:

Monthly data:

Column	Description
Id	Site ID number in Anderson-Teixeira et al. (2014)
Site	Site name
YYYY.MM.DD	Date

Annual data:

Column	Description
ID	Site ID number in Anderson-Teixeira et al. (2014)
Site	Site name
YYYY	Year

How to cite:

Publications using these data should cite Anderson-Teixeira et al. (2014), the CRU-TS v3.10.01 Historic Climate Database for GIS (http://www.cgiar-csi.org/data/uea-cru-ts-v3-10-01-historic-climate-database), and –for PET measurements only-- the Global Potential Evapo-Transpiration (Global-PET) dataset (http://www.cgiar-csi.org/data/global-aridity-and-pet-database*;* Zomer, 2007; Zomer *et al.*, 2008).

Citations:

Anderson-Teixeira KJ, Davies SJ, Bennett, Amy C., Gonzalez-Akre EB, Muller-Landau HC, Wright SJ, et al. (2014) CTFS-ForestGEO: A worldwide network monitoring forests in an era of global change. *Global Change Biology*, **in press**.

Zomer RJ (2007) *Trees and water: smallholder agroforestry on irrigated lands in Northern India*. IWMI, 50 pp.

Zomer RJ, Trabucco A, Bossio DA, Verchot LV (2008) Climate change mitigation: A spatial analysis of global land suitability for clean development mechanism afforestation and reforestation. *Agriculture, Ecosystems & Environment*, **126**, 67–80.