

README file of ARCLIM dataset

This readme file contains information about the files in ARCLIM dataset (Rantanen et al., 2022). If you have any questions or request, please feel free to contact Mika Rantanen mika.rantanen@fmi.fi

Domain

The domain of the variables covers 45-90°N, -180-180°E.

Coordinate reference system

The NETCDF files are in a regular lat/lon grid with 0.1° resolution. The TIF files use EPSG:4326 coordinate reference system.

Annual layers

The annual values of each ARCLIM variable are found from files that follow the naming format “arclim_variable.nc”, where “variable” refers to the abbreviation shown below and Table 2 of the manuscript (e.g. arclim_GSL.nc).

Mean layers

The averages for 1991-2020 are found from arclim_means.nc and arclim_means.tif. The order of the variables follows the order below and Table 2 of the manuscript.

Trend layers

The temporal trends for 1951-2021 are found from arclim_trends.nc and arclim_trends.tif, and the p-values indicating the statistical significance from arclim_pvalues.nc and arclim_pvalues.tif. The order of the variables in the datafiles follows the order below and Table 2 of the manuscript.

Order	Full name	Short name	Unit
1.	Thermal growing season length	GSL	days
2.	Thermal growing degree day sum	GDD	°C days
3.	Frost during the growing season	FGS	°C days
4.	Freezing degree days	FDD	°C days
5.	Number of rain-on-snow events	ROS	year ⁻¹
6.	Number of winter warming events	WWE	year ⁻¹
7.	Intensity of winter warming events	WWI	°C days
8.	Heatwave magnitude index	HWMI	
9.	Vapor pressure deficit magnitude index	VPDI	

10.	Summer warmth index	SWI	°C
11.	Snow season length	SSL	days
12.	Onset of snow season	SSO	day of year
13.	End of snow season	SSE	day of year
14.	Number of high wind speed events	HWE	year ⁻¹
15.	Annual mean temperature	TAVG	K
16.	Annual precipitation	PRA	mm
17.	Annual snowfall	SFA	mm
18.	Annual 10-m wind speed	WSA	m s ⁻¹