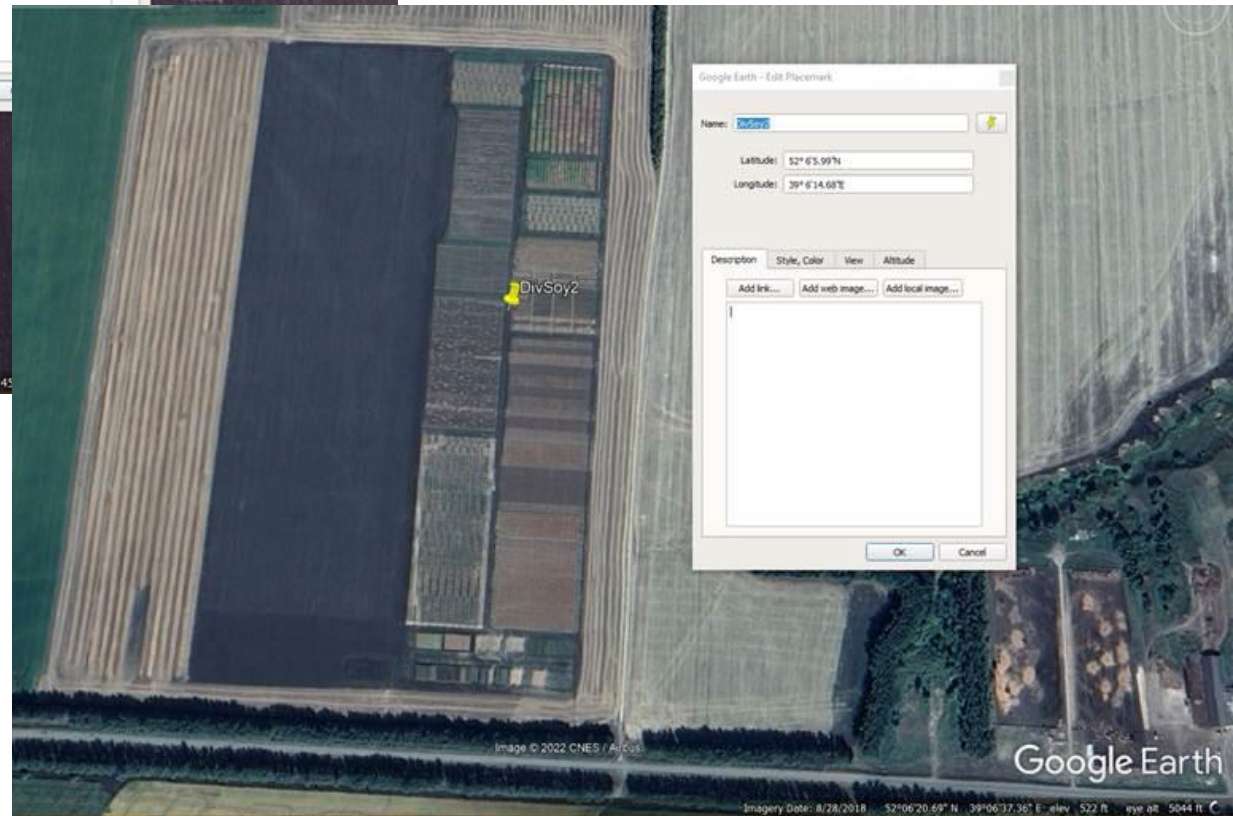
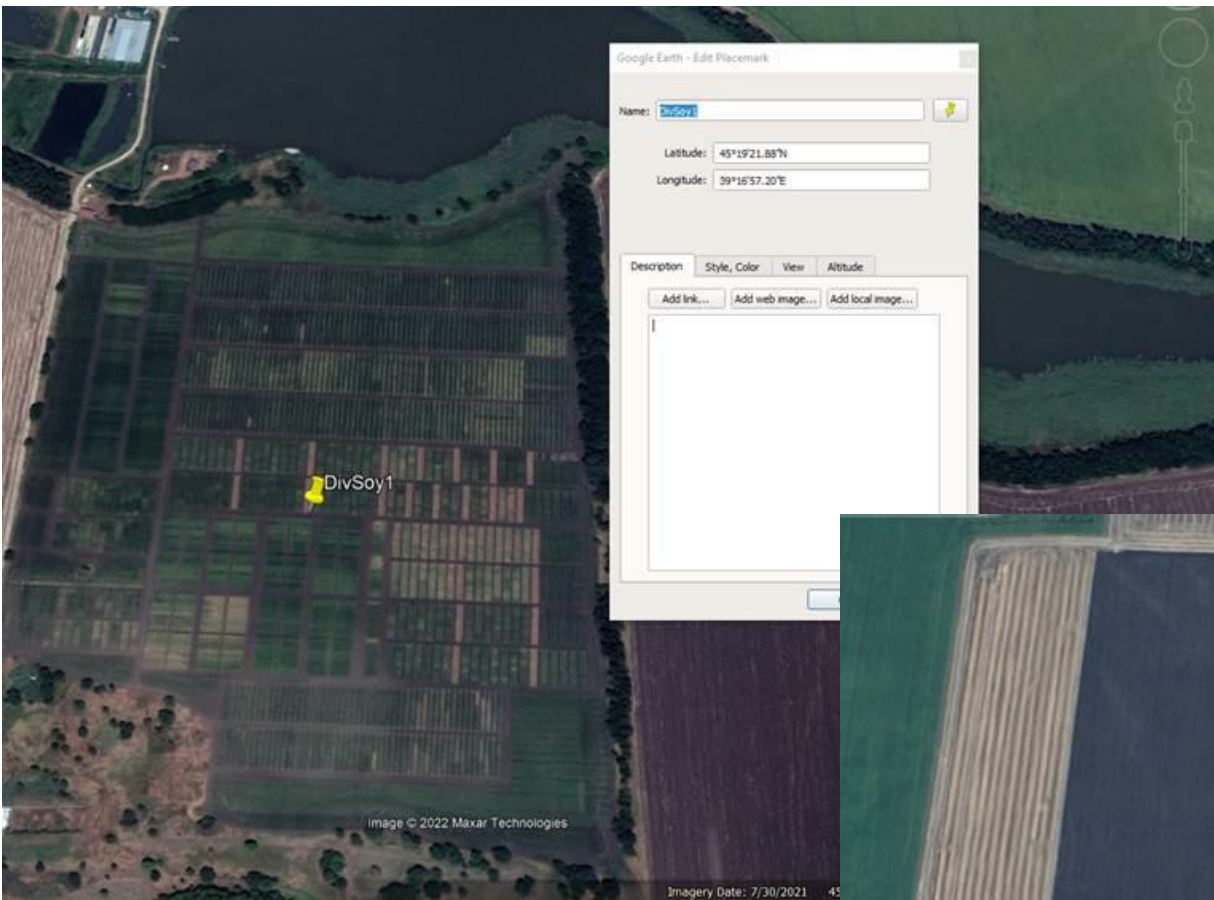
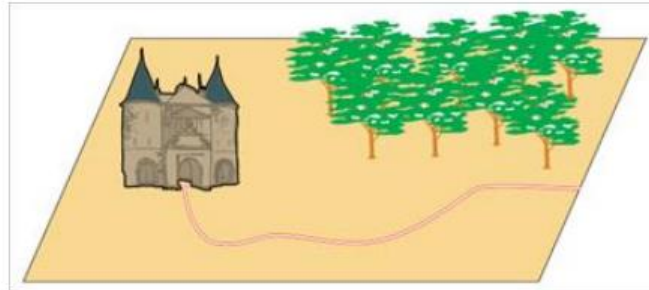


Biogeography informed by genome-wide data

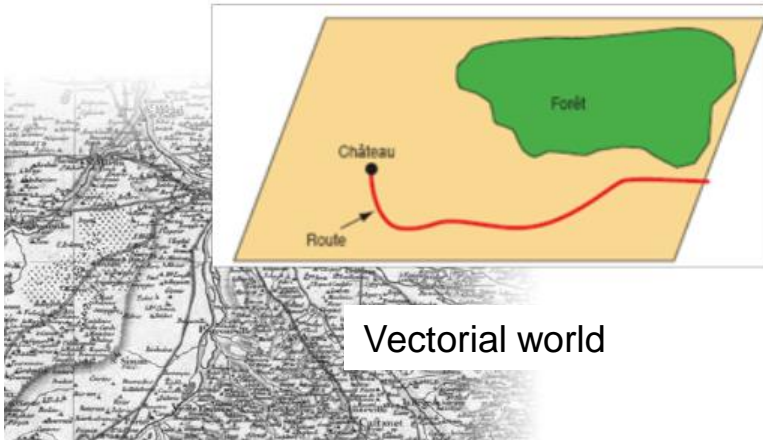
GPS coordinates + satellite: the minimum required



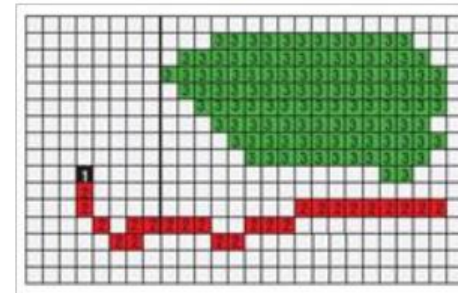
Raster/ vector



Real world



Vectorial world



Matricial world
Raster

The large majority of climate/pedology/geology data are available as raster
(with different resolution of course !)

Global climate and weather data

Welcome to the WorldClim data website.

WorldClim is a database of high spatial resolution global weather and climate data. These data can be used for mapping and spatial modeling. The data are provided for use in research and related activities; and some specialized skill and knowledge is needed to use them ([here is some help](#)). More easily available data for the general public will soon be [available here](#).

You can download gridded weather and climate data for [historical](#) (near current) and [future](#) conditions.

[Historical climate data](#)
[Historical monthly weather data](#)
[Future climate data](#)

<https://www.worldclim.org/data/index.html>

Historical climate data

This is WorldClim version 2.1 climate data for 1970–2000. This version was released in January 2020.

There are monthly climate data for minimum, mean, and maximum temperature, precipitation, solar radiation, wind speed, water vapor pressure, and for total precipitation. There are also 19 “bioclimatic” variables.

The data is available at the four spatial resolutions, between 30 seconds (~1 km²) to 10 minutes (~340 km²). Each download is a “zip” file containing 12 GeoTiff (.tif) files, one for each month of the year (January is 1; December is 12).

| variable | 10 minutes | 5 minutes | 2.5 minutes | 30 seconds |
|---|--------------------------|-------------------------|---------------------------|--------------------------|
| minimum temperature (°C) | tmin 10m | tmin 5m | tmin 2.5m | tmin 30s |
| maximum temperature (°C) | tmax 10m | tmax 5m | tmax 2.5m | tmax 30s |
| average temperature (°C) | tavg 10m | tavg 5m | tavg 2.5m | tavg 30s |
| precipitation (mm) | prec 10m | prec 5m | prec 2.5m | prec 30s |
| solar radiation (kJ m ⁻² day ⁻¹) | srad 10m | srad 5m | srad 2.5m | srad 30s |
| wind speed (m s ⁻¹) | wind 10m | wind 5m | wind 2.5m | wind 30s |
| water vapor pressure (kPa) | vapr 10m | vapr 5m | vapr 2.5m | vapr 30s |

[Historical climate data](#)
[Historical monthly weather data](#)
[Future climate data](#)

Past conditions

Past climate data download

Past climate reconstructions, calibrated and statistically downscaled using the WorldClim data for 'current' conditions. All data are in generic binary grid [format](#)

Last inter-glacial (LIG; ~120,000 - 140,000 years BP)

source: [Otto-Bliesner et al., 2008](#)

30 arc-seconds (~1 km): [tmin](#) [tmax](#) [prec](#) [bio](#)

Last glacial maximum (LGM; ~21,000 years BP)

source: Paleoclimate Modelling Intercomparison Project Phase II ([PMIP2](#)) use conditions: please register with the [PMIP2](#) project if you want to use these data; or want access to the original variables, we only provided data derived from the PMIP2 database.

2.5 arc-minutes

CCSM: [bio](#)

MIROC: [bio](#)

Mid-Holocene (~6000 BP)

source: Paleoclimate Modelling Intercomparison Project Phase II ([PMIP2](#)) use conditions: please register with the [PMIP2](#) project if you want to use these data; or want access to the original variables, we only provided data derived from the PMIP2 database.

2.5 arc-minutes

CCSM:

MIROC:

Bioclimatic variables

Bioclimatic variables are derived from the monthly temperature and rainfall values in order to generate more biologically meaningful variables. These are often used in species distribution modeling and related ecological modeling techniques. The bioclimatic variables represent annual trends (e.g., mean annual temperature, annual precipitation) seasonality (e.g., annual range in temperature and precipitation) and extreme or limiting environmental factors (e.g., temperature of the coldest and warmest month, and precipitation of the wet and dry quarters). A quarter is a period of three months (1/4 of the year).

They are coded as follows:

BIO1 = Annual Mean Temperature

BIO2 = Mean Diurnal Range (Mean of monthly (max temp - min temp))

BIO3 = Isothermality (BIO2/BIO7) ($\times 100$)

BIO4 = Temperature Seasonality (standard deviation $\times 100$)

BIO5 = Max Temperature of Warmest Month

BIO6 = Min Temperature of Coldest Month

BIO7 = Temperature Annual Range (BIO5-BIO6)

BIO8 = Mean Temperature of Wettest Quarter

BIO9 = Mean Temperature of Driest Quarter

BIO10 = Mean Temperature of Warmest Quarter

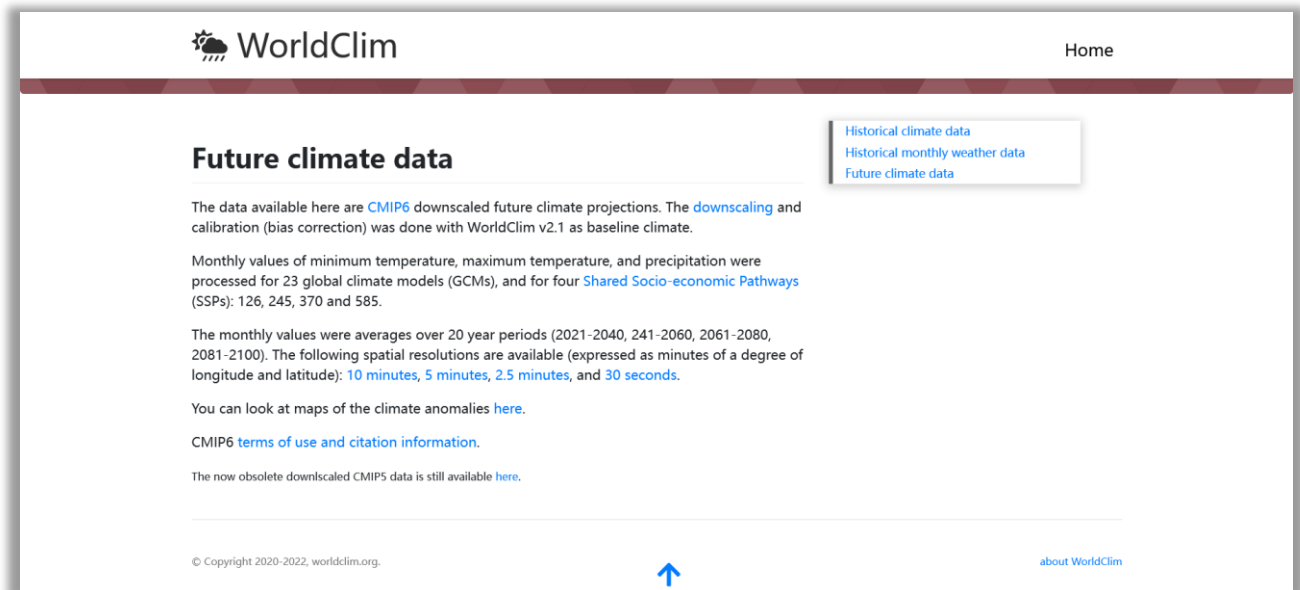
BIO11 = Mean Temperature of Coldest Quarter

BIO12 = Annual Precipitation

BIO13 = Precipitation of Wettest Month

BIO14 = Precipitation of Driest Month

BIO15 = Precipitation Seasonality (Coefficient of Variation)



The screenshot shows the WorldClim website interface. At the top, there is a navigation bar with the WorldClim logo on the left and a 'Home' link on the right. Below the navigation bar, the main content area is titled 'Future climate data'. To the right of this title, there is a vertical menu with three links: 'Historical climate data', 'Historical monthly weather data', and 'Future climate data'. The 'Future climate data' link is highlighted. The main content area contains the following text:

The data available here are [CMIP6](#) downscaled future climate projections. The [downscaling](#) and calibration (bias correction) was done with WorldClim v2.1 as baseline climate.

Monthly values of minimum temperature, maximum temperature, and precipitation were processed for 23 global climate models (GCMs), and for four [Shared Socio-economic Pathways](#) (SSPs): 126, 245, 370 and 585.

The monthly values were averages over 20 year periods (2021-2040, 241-2060, 2061-2080, 2081-2100). The following spatial resolutions are available (expressed as minutes of a degree of longitude and latitude): [10 minutes](#), [5 minutes](#), [2.5 minutes](#), and [30 seconds](#).

You can look at maps of the climate anomalies [here](#).

CMIP6 [terms of use and citation information](#).

The now obsolete downscaled CMIP5 data is still available [here](#).

At the bottom of the page, there is a footer with the copyright notice '© Copyright 2020-2022, worldclim.org.' on the left, a blue upward-pointing arrow in the center, and a link 'about WorldClim' on the right.