

Table S1. Supporting information for Table 1 including URLs with relevant data sources.

Topic	Variable	Relevant data sources
Climate	WorldClim and Chelsa bioclimatic variables (a set of temperature and rainfall variables specifically developed for ecological modeling)	WorldClim version 2.1 climate data for 1970-2000 [1] <a href="https://www.worldclim.org/data/worldclim21.html">https://www.worldclim.org/data/worldclim21.html</a> <a href="https://chelsa-climate.org/bioclim/">https://chelsa-climate.org/bioclim/</a>
Climate	Mean annual precipitation	WorldClim version 2.1 climate data for 1970-2000 [1] <a href="https://www.worldclim.org/data/worldclim21.html">https://www.worldclim.org/data/worldclim21.html</a> <a href="https://gpm.nasa.gov/missions/trmm">https://gpm.nasa.gov/missions/trmm</a> <a href="https://chelsa-climate.org/downloads/">https://chelsa-climate.org/downloads/</a> <a href="https://crudata.uea.ac.uk/cru/data/hrg/">https://crudata.uea.ac.uk/cru/data/hrg/</a>
Climate	Potential Evapotranspiration	<a href="https://lpdaac.usgs.gov/products/mod16a2v006/">https://lpdaac.usgs.gov/products/mod16a2v006/</a>
Climate	Cloud cover	<a href="http://www.earthenv.org/cloud">http://www.earthenv.org/cloud</a> [2]

Vegetation	Fire frequency	<a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-fire-burned-area?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-fire-burned-area?tab=overview</a>  [3–5]
Vegetation	Percentage of woody vegetation cover	MODIS Vegetation Continuous Fields (MOD44B) at 250 m Spatial Resolution ( <a href="https://lpdaac.usgs.gov/products/mod44bv006/">https://lpdaac.usgs.gov/products/mod44bv006/</a> )  <a href="https://land.copernicus.eu/pan-european/high-resolution-layers/forests/tree-cover-density">https://land.copernicus.eu/pan-european/high-resolution-layers/forests/tree-cover-density</a>  <a href="https://glad.umd.edu/dataset/global-2010-tree-cover-30-m">https://glad.umd.edu/dataset/global-2010-tree-cover-30-m</a>  <a href="https://earthenginepartners.appspot.com/science-2013-global-forest/download_v1.7.html">https://earthenginepartners.appspot.com/science-2013-global-forest/download_v1.7.html</a>  [6]
Vegetation	Percentage of grassland cover	MODIS Vegetation Continuous Fields (MOD44B) at 250 m Spatial Resolution ( <a href="https://lpdaac.usgs.gov/products/mod44bv006/">https://lpdaac.usgs.gov/products/mod44bv006/</a> )
Vegetation	Mean of the maximum and minimum Normalized Difference Vegetation Index	MODIS NDVI 16 days composites. Available at <a href="#">250m</a> , <a href="#">500m</a> and <a href="#">1km</a> resolution

Vegetation	Leaf Area Index	<a href="https://land.copernicus.eu/global/products/lai">https://land.copernicus.eu/global/products/lai</a>
Vegetation	Vegetation height	<a href="https://gedi.umd.edu/data/download/">https://gedi.umd.edu/data/download/</a> <a href="https://glad.umd.edu/dataset/gedi/">https://glad.umd.edu/dataset/gedi/</a> <a href="https://catalogue.ceda.ac.uk/uuid/46d70a7636284690882e4ba01cd997c2">https://catalogue.ceda.ac.uk/uuid/46d70a7636284690882e4ba01cd997c2</a>
Soil	Surface Soil Moisture	<a href="https://land.copernicus.eu/global/products/ssm">https://land.copernicus.eu/global/products/ssm</a> <a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-soil-moisture?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-soil-moisture?tab=overview</a>
Soil	Soil organic carbon	<a href="https://zenodo.org/record/2525553">https://zenodo.org/record/2525553</a> <a href="https://data.isric.org/geonetwork/srv/eng/catalog.search#/home">https://data.isric.org/geonetwork/srv/eng/catalog.search#/home</a> <a href="http://54.229.242.119/GSOCmap/downloads/GSOCmap1.5.0.tif">http://54.229.242.119/GSOCmap/downloads/GSOCmap1.5.0.tif</a>

Soil	Soil texture	<a href="https://zenodo.org/record/2525817">https://zenodo.org/record/2525817</a>  <a href="https://data.isric.org/geonetwork/srv/eng/catalog.search#/home">https://data.isric.org/geonetwork/srv/eng/catalog.search#/home</a>
Soil	Soil acidity	<a href="https://zenodo.org/record/2525664">https://zenodo.org/record/2525664</a>  <a href="https://data.isric.org/geonetwork/srv/eng/catalog.search#/home">https://data.isric.org/geonetwork/srv/eng/catalog.search#/home</a>
Terrain	Slope, elevation and aspect	Can be derived from SRTM ( <a href="https://srtm.csi.cgiar.org/srtmdata/">https://srtm.csi.cgiar.org/srtmdata/</a> ) or GEBCO 500m ( <a href="https://www.gebco.net/data_and_products/gridded_bathymetry_data/gebco_2020/">https://www.gebco.net/data_and_products/gridded_bathymetry_data/gebco_2020/</a> ) or EarthEnv ( <a href="http://www.earthenv.org/topography">http://www.earthenv.org/topography</a> )
Terrain	Modified Topographic Index (can be derived from flow accumulation)	<a href="https://www.hydrosheds.org/downloads">https://www.hydrosheds.org/downloads</a>

Water	Mean Normalized Difference Water Index.	<a href="https://developers.google.com/earth-engine/datasets/catalog/MODIS_MOD09GA_006_NDWI">https://developers.google.com/earth-engine/datasets/catalog/MODIS_MOD09GA_006_NDWI</a> <a href="https://lpdaac.usgs.gov/products/mod09gav006/">https://lpdaac.usgs.gov/products/mod09gav006/</a>
Water	Water seasonality	<a href="https://land.copernicus.eu/global/products/wb">https://land.copernicus.eu/global/products/wb</a> <a href="https://global-surface-water.appspot.com/download">https://global-surface-water.appspot.com/download</a> <a href="https://glad.umd.edu/dataset/global-surface-water-dynamics">https://glad.umd.edu/dataset/global-surface-water-dynamics</a>
Water	Snow cover fraction or frequency	<a href="https://nsidc.org/data/MOD10A1/versions/6">https://nsidc.org/data/MOD10A1/versions/6</a>
Water	Snow water equivalent (amount of water contained within the snowpack).	<a href="https://nsidc.org/data/AE_DySno/versions/2">https://nsidc.org/data/AE_DySno/versions/2</a>

Energy	Land Surface Temperature (LST; a mixture of vegetation and soil temperature)	MODIS Terra Land Surface Temperature: <a href="#">1 day</a> <a href="#">8 days composites</a> <a href="#">Monthly composites</a> <a href="https://zenodo.org/record/1435938">https://zenodo.org/record/1435938</a> or [7] <a href="https://land.copernicus.eu/global/products/lst">https://land.copernicus.eu/global/products/lst</a> <a href="https://gpm.nasa.gov/missions/trmm">https://gpm.nasa.gov/missions/trmm</a> <a href="https://chelsa-climate.org/downloads/">https://chelsa-climate.org/downloads/</a> <a href="https://crudata.uea.ac.uk/cru/data/hrg/">https://crudata.uea.ac.uk/cru/data/hrg/</a>
Energy	Mean solar radiation	<a href="https://worldclim.org/data/worldclim21.html">https://worldclim.org/data/worldclim21.html</a> <a href="https://www.ufz.de/gluv/">https://www.ufz.de/gluv/</a>
Energy	Surface albedo	<a href="https://land.copernicus.eu/global/products/sa">https://land.copernicus.eu/global/products/sa</a> <a href="https://nsidc.org/data/MOD10A1/versions/6">https://nsidc.org/data/MOD10A1/versions/6</a>

### Bibliography

1. Fick, S. E.; Hijmans, R. J. WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. *Int. J. Climatol.* **2017**, *37*, 4302–4315, doi:10.1002/joc.5086.
2. Wilson, A. M.; Jetz, W. Remotely Sensed High-Resolution Global Cloud Dynamics for Predicting Ecosystem and Biodiversity Distributions. *PLoS Biol.* **2016**, *14*, e1002415, doi:10.1371/journal.pbio.1002415.
3. Tansey, K.; Grégoire, J.-M.; Defourny, P.; Leigh, R.; Pekel, J.-F.; van Bogaert, E.; Bartholomé, E. A new, global, multi-annual (2000–2007) burnt area product at 1 km resolution. *Geophys. Res. Lett.* **2008**, *35*, doi:10.1029/2007GL031567.

4. Giglio, L.; Csiszar, I.; Justice, C. O. Global distribution and seasonality of active fires as observed with the Terra and Aqua Moderate Resolution Imaging Spectroradiometer (MODIS) sensors. *J. Geophys. Res.* **2006**, *111*, doi:10.1029/2005JG000142.
5. Carmona-Moreno, C.; Belward, A.; Malingreau, J.-P.; Hartley, A.; Garcia-Alegre, M.; Antonovskiy, M.; Buchshtaber, V.; Pivovarov, V. Characterizing interannual variations in global fire calendar using data from Earth observing satellites. *Glob. Change Biol.* **2005**, *11*, 1537–1555, doi:10.1111/j.1365-2486.2005.01003.x.
6. Hansen, M. C.; Potapov, P. V.; Moore, R.; Hancher, M.; Turubanova, S. A.; Tyukavina, A.; Thau, D.; Stehman, S. V.; Goetz, S. J.; Loveland, T. R.; Kommareddy, A.; Egorov, A.; Chini, L.; Justice, C. O.; Townshend, J. R. G. High-resolution global maps of 21st-century forest cover change. *Science* **2013**, *342*, 850–853, doi:10.1126/science.1244693.
7. Ermida, S. L.; Soares, P.; Mantas, V.; Göttsche, F.-M.; Trigo, I. F. Google Earth Engine Open-Source Code for Land Surface Temperature Estimation from the Landsat Series. *Remote Sens (Basel)* **2020**, *12*, 1471, doi:10.3390/rs12091471.