SIDS GIS DATA CATALOGUE

RISING UP FOR SIDS

August 2022

Small Island Developing States

INTRODUCTION

As most of the decisions within governmental organizations and industries become increasingly data driven, there exists a plethora of data that grows exponentially every day. Thus, there exists a perennial quest for new sources of data and means of data analysis and visualization. Geospatial data plays a key role when the rendering of information is in question. Since the location is found associated with the attribute information, large sets of spatial data are gleaned from many diverse sources in varying formats.

The additional location context makes it content-rich and provides one with better insights that may otherwise be difficult to infer. In the recent years, technological advancements in data acquisition systems have made many geospatial technology affordable and accessible to the global community. The sheer volume of this geospatial data necessitates specialized knowledge and expertise for pre-processing. Unless the raw geospatial data is pre-processed, it is not deemed fit for targeted use.

In addition to this, there has been a significant movement in recent years within academic research to promote open data. This new movement towards open data also presents many challenges in geospatial research, as the process of finding insights from this open data is not simple. For example, every dataset can vary in projection, resolution, file format, spatial alignment, and in other key ways that raise significant barriers to data scientists to extract meaningful insights. Open data especially presents its own challenges as well, as there is a varying degree of quality and metadata standards. These datasets are often spread across many different geospatial portals, hidden in academic journals, and distributed across the internet in a way that is rarely optimized for discovery or access.

Although there have been several portals designed to begin to address this issue such as OpenDRI, ResourceWatch, or Google Earth Engine, there has never been any effort to compile geospatial resources specifically focused on the SIDS. There is a definite need for a broad survey, compilation, and release of geospatial datasets that are global and publicly available with a coverage and focus on SIDS in order to provide cohesive data across each Sustainable Development Goal (SDG).

Hence, this data catalogue brought out by the SIDS team aims to fill this exact void. In total, there are 82 datasets, predominantly rasters, curated from various sources such as ResourceWatch, Socioeconomic Data and Applications Center (SEDAC), World Resources Institute (WRI). Datasets pertaining to a wide range of developmental aspects such as Agriculture, Infrastructure, Biodiversity, Ocean Health, Soil, Land Use/Land Cover find place in this assortment.

The raster datasets have been standardized to several resolutions (1km, 5km, and 10km) for hexagonal and square grids, as well as two levels of admin regions. Each of these raster datasets has been processed with our custom data pipeline which reprojects and resamples the original datasets using a zonal statistics method for these pre-generated grids. There are three basic functions that the pipeline does:

1. **Standardization**

Ensures that all the datasets are in a common projection system (EPSG:4326) with data clipped to the boundaries of SIDS.

2. **Zonal Statistics Computation**

Zonal statistics (mean and count) are computed for each feature in a given vector from every available raster.

3. **Conversion to MapBox Vector Tiles**

The results from zonal stats are added to the vector geometries in each layer in attribute columns. Depending on the provided arguments the attributes are either added to the same vector layer or new layers are created for every raster layer. Once this pre-processing is done, the datasets are exported as MapBox Vector Tiles (MVT).

The subsequent section comprises the list of datasets with relevant metadata.

GIS Datasets

Dataset Code	Category	Dataset Title	Citation	Layers	Years
alosLandUse	Biodiversity	Forest vs. Non forest	Shimada et al., 2014	7	2007-2017
anthromes	Land	Anthropogenic Biomes	Ellis & Ramankutty, 2008	5	2001-2005
aquaculturePotential	Ocean	Global Potential for Marine Aquaculture	Gentry et al., 2017	10	2020
aqueductFloodHazard	Aqueduct	Aqueduct Flood Hazard	Hofste et al., 2019	9	2020
aqueductWaterStress	Aqueduct	Aqueduct Water Stress Projections	Luck et al., 2015	1	2015
aridity	Land	Aridity	Trabucco & Zomer, 2019	1	1970-2000
berkeleyPrecip	Land	Annual Precipitation	Hijmans et al., 2005	18	1960-1990
biodiversityHotspots	Biodiversity	Biodiversity Hotspots	Hoffman et al., 2016	1	2016
copernicusLandCover	Land	Global Land Cover	Buchhorn et al., 2020	1	2015
coralBleaching	Ocean	Frequency of Future Coral Reef Bleaching Events	Donner, 2009	2	2030-2050
cropAllocation	Land	Crop Allocation to food, feed and non-food	Cassidy et al., 2013	6	2003-08
cropHarvest	Agriculture	Crop Land Area and Production	IFPRI & IIASA, 2016	8	2005
cropHarvestArea	Agriculture	Global Agro-ecological Zones - GAEZ 2015 - Harvest Area	Frolking et al., 2020	78	2015
croplandAndPastures	Land	Cropland and Pasture Area	Ramankutty et al., 2008	2	2000
cropNutrientBalance	Land	Crop Nutrient Balance	West et al., 2012	2	2000
cropProduction	Agriculture	Global Agro-ecological Zones - GAEZ 2015 - Crop Production	Frolking et al., 2020	78	2015
cropTrends	Agriculture	Maize, Rice, Soybean, and Wheat Yield Trends	Ray et al., 2012	4	2008
cropYield	Agriculture	Global Agro-ecological Zones - GAEZ 2015 - Crop Yield	Frolking et al., 2020	78	2015
dem	DEM	Digital Elevation Model	de Ferranti, 2014	1	2014
developmentPotentialIndex	Infrastructure	Development Potential Index	Oakleaf et al., 2019	13	2016
electrification	Infrastructure	Predicted Low-Voltage Infrastructure	Arderne et al., 2020	1	2020
extremePrecipitation	Land	Projected Change in Extreme Precipitation Days	Gassert et al., 2021	333	1985-2015, 2065-2095
floodEconomicLoss	Natural Hazards	Global Flood Proportional Economic Loss Risk Deciles	Dilley et al., 2005	1	2000
flopros	Natural Hazards	FLOPROS – Flood Protection Standards	Scussolini et al., 2016	1	2016
forestBiomass	Biodiversity	Global Forest Biomass	Kindermann et al., 2008	22	2008
forestRestorationOpportunity	Land	Forest Landscape Restoration	Potapov et al., 2020	1	2011
gdhy	Agriculture	Global dataset of historical yields	Løvholt et al., 2020	350	1981-2015
GDPperCapita	Economy	GDP per Capita	Kummu et al., 2018	3	2015
globalCriticalHabitat	UNEP WCMC	Global Critical Habitat screening layer	UNEP-WCMC, 2017	1	2017
globalTsunamiHazard	Natural Hazards	Global Tsunami Hazard	Gillbert et al., 2018	7	2017
griddedLivestock	FAO	Gridded Livestock Density	Davies et al., 2018	21	2000
griddedSpecies	Biodiversity	Gridded Species Distribution	Rodó et al., 2021	207	2015
harmonizedWorldSoil	Soil and Geology	Harmonized World Soil Database	FAO/IIASA/ISRIC/ISSCAS /JRC, 2012	1	2012

GIS Datasets

heatDays	Land	Projected Change in Extreme Heat Days	Gassert et al., 2021	18	2015-2095
humanFootprint	SEDAC	Human Footprint, 2018 Release (2009)	Venter et al., 2016	1	2009
humanImpactOceans	Ocean	Human Impacts on Oceans	Stock et al., 2018	8	2018
humanModification	SEDAC	Global Human Modification of Terrestrial Systems, v1 (2016)	Kennedy et al., 2019	1	2016
hydeAnthromes	Land	HYDE Historical Anthropogenic Biomes	Goldewijk et al., 2017	54	2006
hydrosheds	Hydrology	HydroSHEDS	Lehner et al., 2008	7	2006
ihme	IHME	IHME Global Burden of Disease	IHME, 2020	33	2000-2010
isric	Soil and Geology	ISRIC - World Soil Information	Batjes, 2009	8	1986-2016
malariaAtlas	Accessibility	Accessibility To Cities	Weiss et al., 2015	6	2015-2020
mangroveBiomass	Land	Aboveground Live Woody Biomass Density	Baccini et al., 2019	1	2012
mangroves	Ocean	Mangrove Forests	Bunting et al., 2018	1	2016
mapSpam	Agriculture	MapSPAM	Yu et al., 2010	1062	2010
maxTempChange	Land	Projected Change in Annual Average Maximum Temperature	Gassert et al., 2021	18	2015-2095
multiHazard	SEDAC	Global Multihazard Frequency and Distribution	Dilley et al., 2005	1	2000
nighttimeLights	Land	Nighttime Lights (Annual, Stable Lights)	Elvidge et al., 1997	3	2013
oceanAcidification	Ocean	Projected Ocean Acidification	Van Hooidonk et al., 2014	90	2009-2098
oceanDepth	GEBCO	Ocean Depth	GEBCO, 2022	1	2020
octocorals	UNEP WCMC	Global Distributions of Habitat Suitability for Cold-Water Octocorals	Yesson et al., 2012	7	2012
ohi	Ocean	Ocean Health Index	Halpern et al., 2019	17	2008
populationDensity	Population	Population Density	CIESIN, 2018	1	2020
potentialET	Land	Potential Evapotranspiration	Trabucco & Zomer, 2019	1	2000
potentialVegetation	Land	Potential Natural Vegetation	Mueller et al., 2012	21	2019
saltMarshes	Land	Saltmarshes	Mcowen et al., 2017	2	2015-2016
terrestrialEcoregions	Land	Terrestrial Ecoregions	TNC, 2019	1	2019
tsunamiEvents	Natural Hazards	Tsunami Event Historical Database	NGDC/WDS, 2017	1	2018
urbanExpansionProbability	SEDAC	Global Grid of Probabilities of Urban Expansion to 2030, v1	Seto et al., 2016	1	2000-2030
urbanFootprint	Urban Footprint	Global Urban Footprint	Esch et al., 2014	1	2016
urbanHeatIsland	SEDAC	Global Urban Heat Island (UHI) Data Set, v1	CIESIN, 2016	1	2013
usgsMining	Soil and Geology	Major mineral deposits of the world	Schulz & Briskey, 2005	1	2005
vegetationHealth	Land	Vegetation Health Index	NOAA STAR, 2018	8	2013-2020
waterUse	Water Resources	Water Use	Huang et al., 2018	10	2010-2018
wetlandsAndWaterbodies	Land	Wetlands and Waterbodies	Lehner & Döll, 2004	1	2004
aqueductGlobalMaps	Aqueduct	Aqueduct Global Maps 3.0	Ward et al., 2020	12	2019

Forest vs. Non forest

Dataset Code: alosLandUse

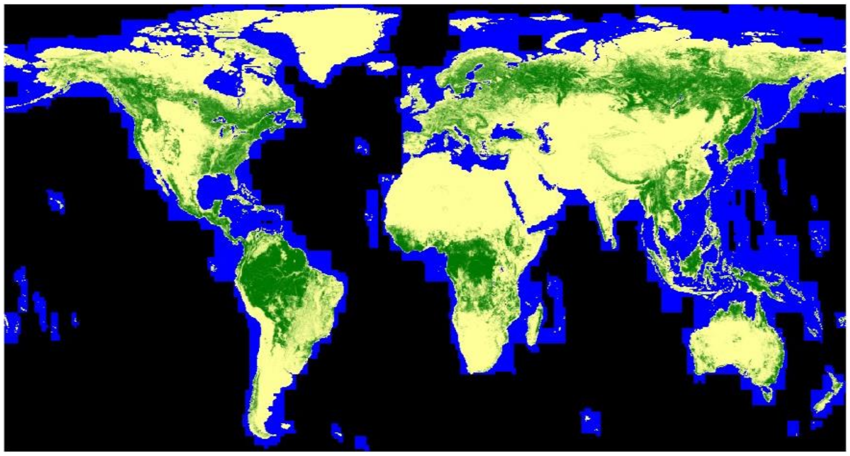
The global forest/non-forest map (FNF) is generated by classifying the SAR image (backscattering coefficient) in the global 25m resolution PALSAR-2/PALSAR SAR mosaic so that strong and low backscatter pixels are assigned as "forest" and "non-forest", respectively. Here, "forest" is defined as the natural forest with the area larger than 0.5 ha and forest cover over 10%.

Citation:
Masanobu Shimada, Takuya Itoh, Takeshi Motooka, Manabu Watanabe, Shiraishi Tomohiro, Rajesh Thapa, and Richard Lucas, "New Global Forest/Non-forest Maps from ALOS PALSAR Data (2007-2010)", Remote Sensing of Environment, 155, pp. 13-31, December 2014. DOI=10.1016/j.rse.2014.04.014.

Layers:
Forest vs. Non forest

Year/s:	Format:	Resolution:	Units:
2007-2017	Generic Binary (BSQ)	225 m	Numeric

Source Link:
https://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/data/index.htm



Anthropogenic Biomes

Dataset Code: anthromes

The Anthropogenic Biomes of the World, Version 1 data set describes globally-significant ecological patterns within the terrestrial biosphere caused by sustained direct human interaction with ecosystems, including agriculture, urbanization, forestry and other land uses.

Citation:

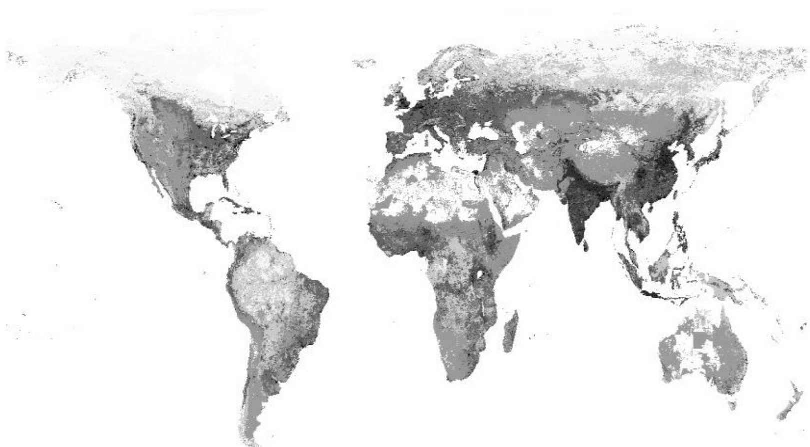
Ellis, E. C., K. Klein Goldewijk, S. Siebert, D. Lightman, and N. Ramankutty. 2010. "Anthropogenic transformation of the biomes, 1700 to 2000." Anthromes Working Group. Retrieved from http://ecotope.org/anthromes/v2/data/. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:

Anthropogenic Biomes

Year/s:	Format:	Resolution:	Units:
2001-2005	.tif	~10 km	Numeric

Source Link:
https://resourcewatch.org/data/explore/soc063-Anthropogenic-Biomes-of-the-World



Global Potential for Marine Aquaculture

Dataset Code: aquaculturePotential

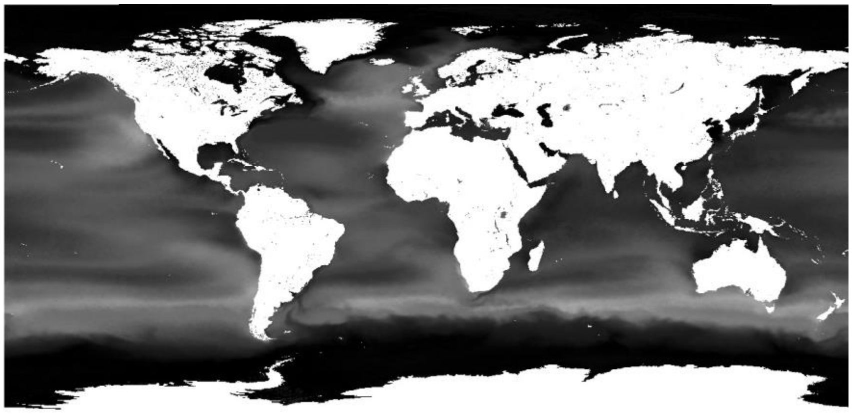
This project maps the biological production potential for marine aquaculture across the globe using an innovative approach that draws from physiology, allometry and growth theory. The final output is a global index of marine aquaculture potential across the globe for a) fish b) bivalves

Citation:
Gentry, R. R., Froehlich, H. E., Grimm, D., Kareiva, P., Parke, M., Rust, M., Gaines, S. D., Halpern, B. S. (2017). Mapping the global potential for marine aquaculture. Nature Ecology and Evolution, 1(9), 1317–1324. https://doi.org/10.1038/s41559-017-0257-9

Layers:
Global Potential for Marine Aquaculture

Year/s:	Format:	Resolution:	Units:
2020	.tif	800m (1/120°)	Numeric

Source Link:
https://knb.ecoinformatics.org/view/doi:10.5063/F1CF9N69



Aqueduct Flood Hazard

Dataset Code: aqueductFloodHazard

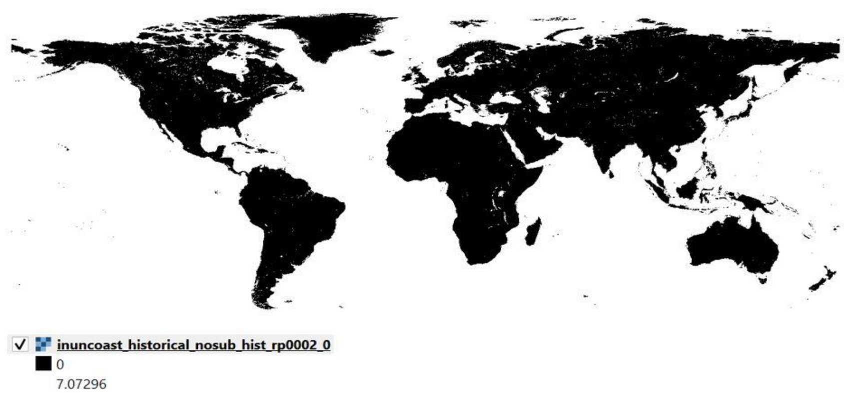
Aqueduct 3.0 introduces an updated water risk framework and new and improved indicators. It also features different hydrological sub-basins. The indicators based on a new hydrological model that now features (1) integrated water supply and demand, (2) surface water and groundwater modeling, (3) higher spatial resolution, and (4) a monthly time series that enables the provision of monthly scores for selected indicators.

Citation:
Hofste, R., Kuzma, S., Walker, S., Sutanudjaja, E., Bierkens, M., Kuijper, M., Faneca Sanchez, M., Van Beek, R., Wada, Y., Galvis Rodríguez, S., Reig, P. (2019). Aqueduct 3.0: Updated Decision-Relevant Global Water Risk Indicators. World Resources Institute, July, 1–53. https://doi.org/10.46830/writn.18.00146

Layers:
2-year flood, 5-year flood, 10-year flood, 25-year flood, 50-year flood, 100-year flood, 250-year flood, 500-year flood, 1000-year flood

Year/s:	Format:	Resolution:	Units:
2020	.tif	PCR-GLOBWB 2 using 5 × 5 arc minute spatial resolution	Numeric

Source Link:
https://www.wri.org/data/aqueduct-floods-hazard-maps



Aqueduct Global Maps 3.0

Dataset Code: aqueductGlobalMaps

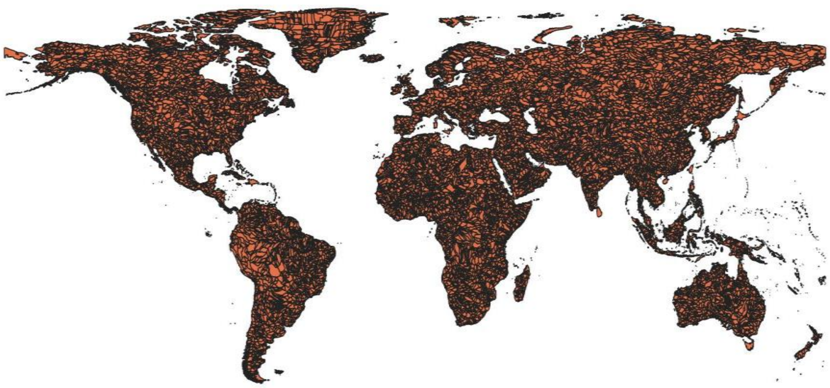
Aqueduct Floods is an online platform that measures riverine and coastal flood risks under both current baseline conditions and future projections in 2030, 2050, an 2080.

Citation:
Ward, P. J., Winsemius, H. C., Kuzma, S., Bierkens, M. F. P., Bouwman, A., Moel, H. DE, Loaiza, A. D., Eilander, D., Englhardt, J., Gilles, E., Gebremedhin, E., Iceland, C., Kooi, H., Ligtvoet, W., Muis, S., Scussolini, P., Sutanudjaja, E. H., Beek, R. Van, Bemmel, B., Luo, T. (2020). Aqueduct Floods Methodology. World Resources Institute, January, 1–28. www.wri.org/publication/aqueduct-floods-methodology

Layers:
January, February, March, April, May, June, July, August, September, October, November, December

Year/s:	Format:	Resolution:	Units:
2019	.shp	5 × 5 arc minute spatial resolution	Numeric

Source Link:
https://www.wri.org/data/aqueduct-global-maps-30-data



Aqueduct Water Stress Projections

Dataset Code: aqueductWaterStress

The Aqueduct Water Stress Projections Data include indicators of change in water supply, water demand, water stress, and seasonal variability, projected for the coming decades under scenarios of climate and economic growth

Citation:

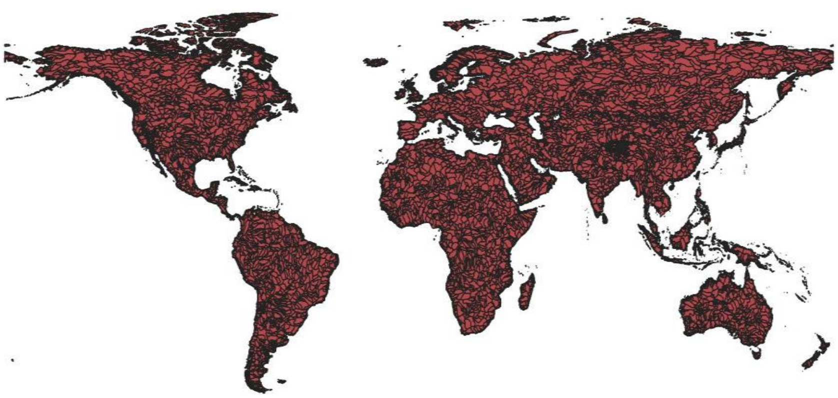
Luck, M., Landis, M., Gassert, F. (2015). Aqueduct Water Stress Projections: Decadal projections of water supply and demand using CMIP5 GCMs. World Resources Institute Techical Note, April, 1–20. wri.org/publication/aqueduct-water-stress-projections

Layers:

Aqueduct Water Stress Projections

Year/s:	Format:	Resolution:	Units:
2015	.shp	5 × 5 arc minute spatial resolution	Numeric

Source Link:
https://www.wri.org/data/aqueduct-water-stress-projections-data



Aridity

Dataset Code: aridity

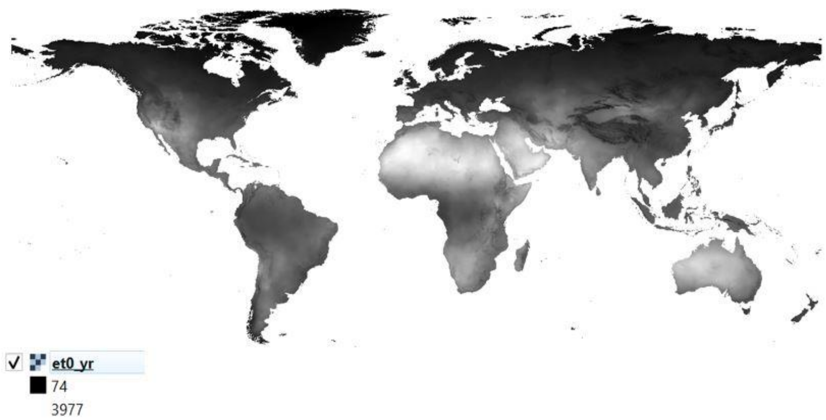
This database is designed for use in models of sustainable development, biodiversity and environmental conservation, poverty alleviation, and adaption to climate change globally, in particular in developing countries, and provides data for each month between 1970 and 2000 at a spatial resolution of 30 arc seconds. This data set is the aridity index (AI), which is calculated as the ratio of mean annual precipitation to mean annual potential evapotranspiration (PET), using data from the WorldClim Global Climate Database. The yearly precipitation values are available directly from the WorldClim database, and the PET values are derived from a selection of WorldClim variables.

Citation:
Trabucco, Antonio; Zomer, Robert (2019): Global Aridity Index and Potential Evapotranspiration (ET0) Climate Database v2. figshare. Fileset. https://doi.org/10.6084/m9.figshare.7504448.v3 Add to Citavi project by DOI Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Aridity

Year/s:	Format:	Resolution:	Units:
1970	.tif	30 arc seconds	Numeric

Source Link:
https://resourcewatch.org/data/explore/cli030rw1-Aridity



Annual Precipitation

Dataset Code: berkeleyPrecip

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 wettest and driest quarters).

Citation:

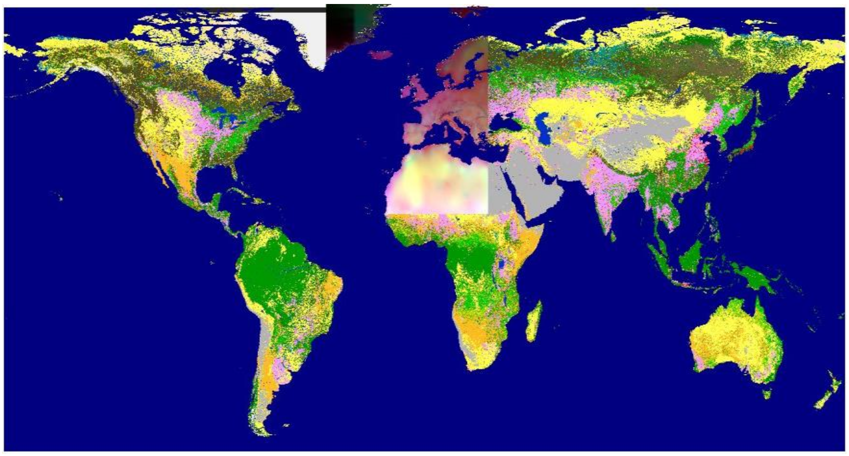
Hijmans, R. J., Cameron, S. E., Parra, J. L., Jones, P. G., Jarvis, A. (2005). Very high resolution interpolated climate surfaces for global land areas. International Journal of Climatology, 25(15), 1965–1978. https://doi.org/10.1002/joc.1276 Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:

Annual Precipitation

Year/s:	Format:	Resolution:	Units:
1990	.tif	1km	Numeric

Source Link:
https://resourcewatch.org/data/explore/wat034-Annual-Precipitation



Biodiversity Hotspots

Dataset Code: biodiversityHotspots

There are currently 36 recognized biodiversity hotspots. These are Earth's most biologically rich—yet threatened—terrestrial regions.

To qualify as a biodiversity hotspot, an area must meet two strict criteria:

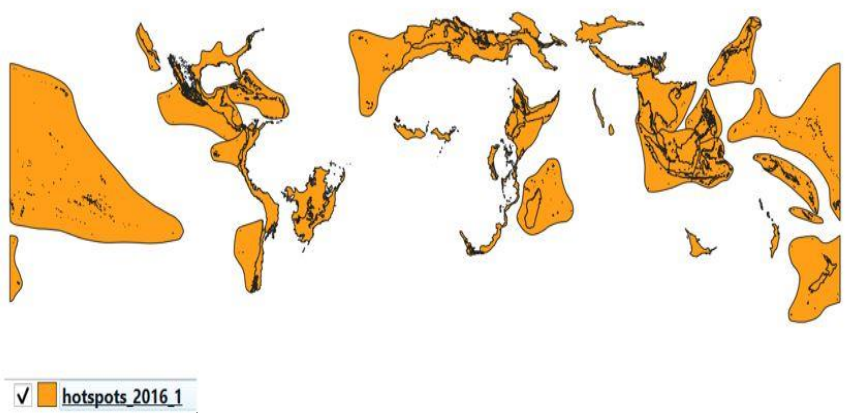
Contain at least 1,500 species of vascular plants found nowhere else on Earth (known as "endemic" species).
Have lost at least 70 percent of its primary native vegetation.
Many of the biodiversity hotspots exceed the two criteria. For example, both the Sundaland Hotspot in Southeast Asia and the Tropical Andes Hotspot in South America have about 15,000 endemic plant species. The loss of vegetation in some hotspots has reached a startling 95 percent.

Citation:
Michael Hoffman, Kellee Koenig, Gill Bunting, Jennifer Costanza, Williams, Kristen J. (2016). Biodiversity Hotspots (version 2016.1) (2016.1) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.3261807

Layers:
Biodiversity Hotspots

Year/s:	Format:	Resolution:	Units:
2016	.shp	1km	categorical

Source Link:
https://zenodo.org/record/3261807



Global Land Cover

Dataset Code: copernicusLandCover

The Copernicus Global Land Service (CGLS) delivers a global Land Cover product at 100-meter spatial resolution (CGLS-LC100) on an annual basis from 2015-2019. Each pixel value corresponds to a different type (class) of physical coverage of the Earth's surface, e.g. forests, grasslands, croplands, lakes, wetlands. The classifications follow the United Nations Food and Agriculture Organization (UN-FAO) Land Cover Classification System (LCCS) scheme. Resource watch displays 11 discrete LCCS classifications, with all forests grouped into open or closed classes.

Citation:

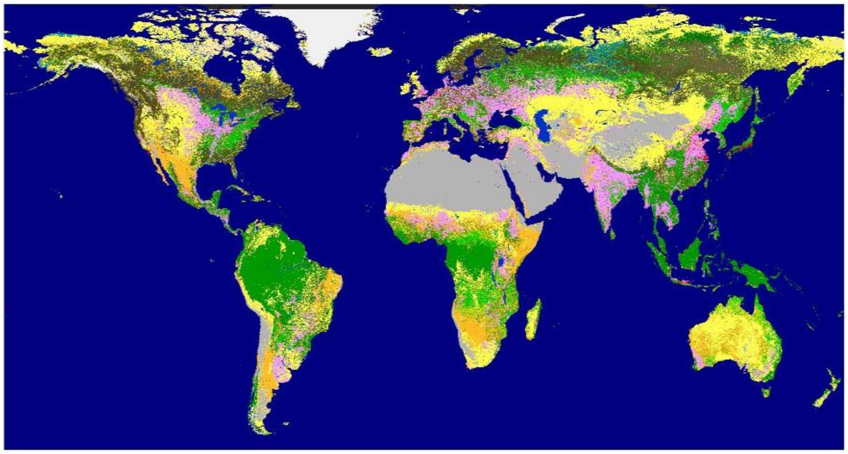
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers — Collection 2. Remote Sensing 2020, 12, Volume 108, 1044. DOI 10.3390/rs12061044. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:

Land Use Land Cover

Year/s:	Format:	Resolution:	Units:
2015	.tif	100 m	Categorical

Source Link:
https://resourcewatch.org/data/explore/Global-Land-Cover-UN-FAO-LCCS-Classification



Frequency of Future Coral Reef Bleaching Events

Dataset Code: coralBleaching

The Frequency of Future Coral Reef Bleaching Events dataset shows the number of years during the 2030 and 2050 decades that coral bleaching is likely to occur from increased water temperature. The dataset relies on a thermal stress model that uses the units degree heating months (DHM) to determine risk of bleaching. A water temperature rise of 2 degrees celsius is equal to the National Oceanic and Atmospheric Administration (NOAA) Bleaching Alert Level 2, where bleaching will likely occur. The final dataset is presented at a gridded spatial resolution of 50 km and shows the number of years each grid cell will reach a DHM of at least 2 during the decade.

Citation:

Donner, S.D. 2009. "Coping with Commitment: Projected thermal stress on coral reefs under different future scenarios." PLoS ONE 4(6): e5712.Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:

Future Thermal Stress (2030s), Future Thermal Stress (2050s)

Year/s:	Format:	Resolution:	Units:
2030-2050	.lyr	50km	Numeric

Source Link:

https://www.wri.org/data/reefs-risk-revisited

Crop Allocation to food, feed and non-food

Dataset Code: cropAllocation

The Crop Allocation to Food, Feed, Nonfood dataset shows how crops are used around the world. The dataset also shows calorie production per what fraction of global crop production actually becomes food. This data shows how many kilocalories of food, feed, and nonfood are produced by 41 crops combined.

Citation:

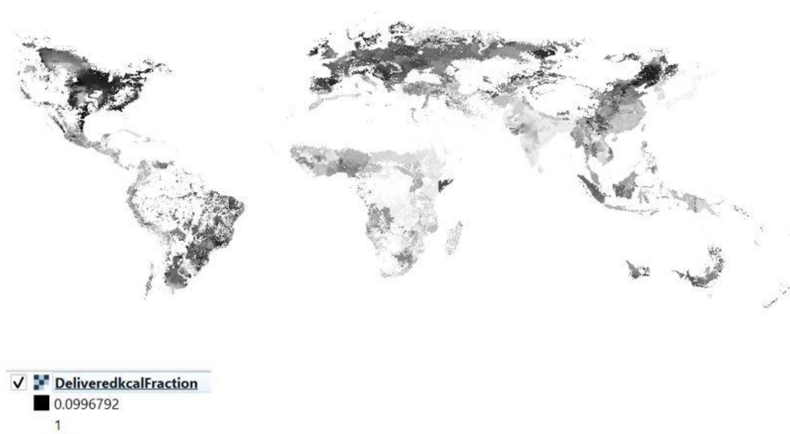
Cassidy, E.S., P.C. West, J.S. Gerber, and J.A. Foley. 2013. "Redefining Agricultural Yields: From Tonnes to People Nourished per Hectare." Environmental Research Letters 8 (3): 34015. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:

Crop Allocation to food, feed and non-food

Year/s:	Format:	Resolution:	Units:
2003-2008	.tif	5 arc minutes	Numeric

Source Link:
https://resourcewatch.org/data/explore/foo057-Crop-Allocation-to-Food-Feed-Nonfood



Crop Land Area and Production

Dataset Code: cropHarvest

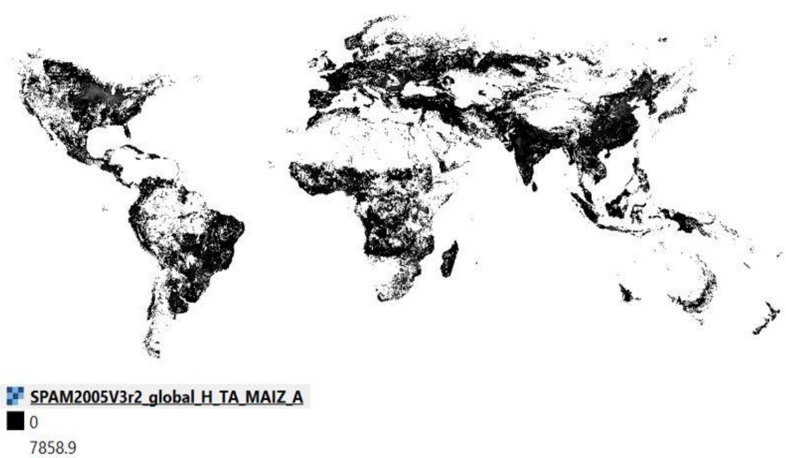
The Crop Land and Production dataset shows global harvested area and production for four major crops: wheat, soybean, rice and maize. The dataset was derived from the 2005 Spatial Production Allocation Model (SPAM). The SPAM model aimed to disaggregate (downscale) national and subnational crop statistics using a variety of inputs, such as cropland surface, location of irrigated areas, crop suitability and potential yields, rural population densities, production systems characteristics and crop prices. Crop data was downscaled to a spatial resolution of 5 arc minutes. This spatial resolution is approximately 10 kilometers x 10 kilometers at the equator, but changes with distance from the equator.

Citation:
International Food Policy Research Institute (IFPRI) and International Institute for Applied Systems Analysis (IIASA). 2016. "Global Spatially-Disaggregated Crop Production Statistics Data for 2005 Version 3.2." https://doi.org/10.7910/DVN/DHXBJX Add to Citavi project by DOI Harvard Dataverse, V9. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Global maize harvest, Global rice harvest, Global soya bean harvest, Global wheat harvest, Global maize production, Global rice production, Global soya bean production, Global wheat production

Year/s:	Format:	Resolution:	Units:
2005	.tif	10km	Numeric

Source Link:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/DHXBJX



Global Agro-ecological Zones - GAEZ 2015 - Harvest Area

Dataset Code: cropHarvestArea

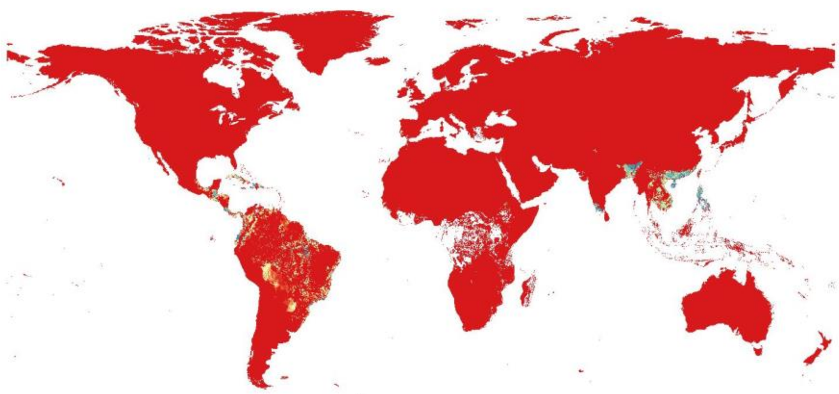
This dataset, GAEZ+_2015, provides global, gridded (5-arcminute resolution) irrigated and rainfed crop harvested areas, irrigated and rainfed crop production, and irrigated and rainfed crop yield for 26 different crops/crop categories

Citation:
Frolking, Steve; Wisser, Dominik; Grogan, Danielle; Proussevitch, Alexander; Glidden, Stanley, 2020, "GAEZ+_2015 Crop Harvest Area", https://doi.org/10.7910/DVN/KAGRFI, Harvard Dataverse, V4

Layers:
Banana, Barley , Cassava, Cotton, CropsNES, Foddercrops, Groundnut , Maize , Millet , Oilpalmfruit , Olives , Othercereals , PotatoAndSweetpotato , Pulses , Rapeseed , Rice , Sorghum , Soybean , Stimulants , Sugarbeet , Sugarcane , Sunflower , Tobacco , Vegetables , Wheat , Yamsandotherroots

Year/s:	Format:	Resolution:	Units:
2015	.tif	nan	Numeric

Source Link:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/KAGRFI



Cropland and Pasture Area

Dataset Code: croplandAndPastures

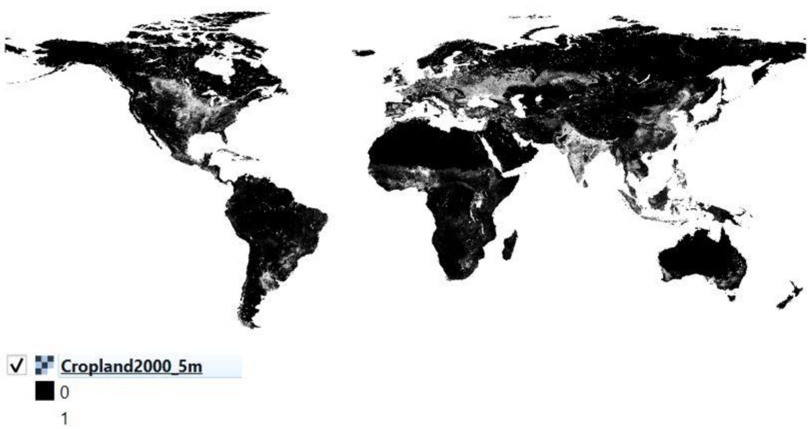
The Cropland and Pasture Area dataset shows the global distribution of agricultural activities for the year 2000. It is a combination of both satellite based datasets and agricultural inventory data from censuses. The dataset displays the percentage of land used for farming (cropland) and livestock (pasture area) for each grid cell. Each grid cell has a value of 0% to 100% coverage. A value of 0% means there are no agricultural activities present and 100% means the gridcell is completely used for cropland or pasture area. The dataset is displayed at a spatial resolution of 5 arc minutes (around 10 kilometers).

Citation:
Ramankutty, N., A.T. Evan, C. Monfreda, and J.A. Foley (2008). "Farming the planet: 1. Geographic Distribution of global agricultural lands in the year 2000. Global Biogeochemical Cycles 22, Gb1003, doi:10.1029/2007/GB002952. Add to Citavi project by DOI" Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Cropland and Pasture Area

Year/s:	Format:	Resolution:	Units:
2000	.tif	5 arc minutes	Numeric

Source Link:
https://resourcewatch.org/data/explore/foo049-Cropland-and-Pasture-Area-2000



Crop Nutrient Balance

Dataset Code: cropNutrientBalance

The Crop Nutrient Balance data set was created by EarthStat, the University of Minnesota's Institute on the Environment and the Land Use (UMN IonE) and the Global Environment Lab at the University of British Columbia (LUGE Lab at UBC). This map shows the excess or deficit of elemental nitrogen and phosphorus globally at a 5 arc minute resolution. These data represent the year 2000 but were calculated from input data sets ranging from 1994-2001.

Citation:
West, P. C., Gerber, J. S., Engstrom, P. M., Mueller, N. D., Brauman, K. A., ES Cassidy, PM Engstrom, M Johnston, GK MacDonald, DK Ray, Siebert, S. (2014). Leverage points for improving global food security and the environment. Science, 345(6194), 325-328. http://science.sciencemag.org/content/345/6194/325.abstract. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Nitrogen Balance on Landscape, Phosphorous Balance on Landscape

Year/s:	Format:	Resolution:	Units:
2000	.tif	5 arc minutes	Numeric

Source Link:
https://resourcewatch.org/data/explore/foo058-Crop-Nutrient-Balance

Global Agro-ecological Zones - GAEZ 2015 - Crop Production

Dataset Code: cropProduction

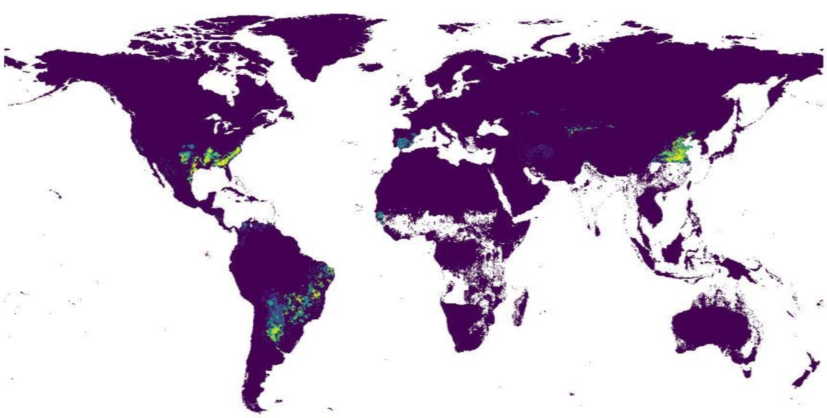
This dataset, GAEZ+_2015, provides global, gridded (5-arcminute resolution) irrigated and rainfed crop harvested areas, irrigated and rainfed crop production, and irrigated and rainfed crop yield for 26 different crops/crop categories

Citation:
Frolking, Steve; Wisser, Dominik; Grogan, Danielle; Proussevitch, Alexander; Glidden, Stanley, 2020, "GAEZ+_2015 Crop Production", https://doi.org/10.7910/DVN/KAGRFI, Harvard Dataverse, V4

Layers:
Banana, Barley , Cassava, Cotton, CropsNES, Foddercrops, Groundnut , Maize , Millet , Oilpalmfruit , Olives , Othercereals , PotatoAndSweetpotato , Pulses , Rapeseed , Rice , Sorghum , Soybean , Stimulants , Sugarbeet , Sugarcane , Sunflower , Tobacco , Vegetables , Wheat , Yamsandotherroots

Year/s:	Format:	Resolution:	Units:
2015	.tif	nan	Numeric

Source Link:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/KJFUO1



Maize, Rice, Soybean, and Wheat Yield Trends

Dataset Code: cropTrends

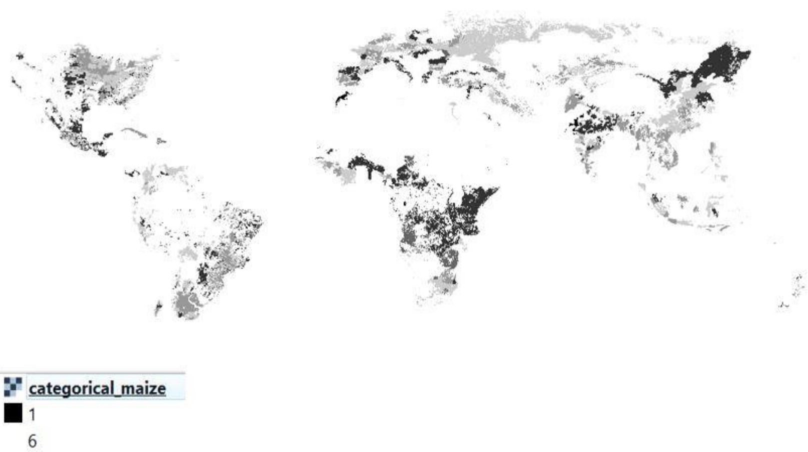
The Maize, Rice, Soybean, and Wheat Yield Trends dataset shows the average annual change in crop yield from 1989-2008. Agricultural crop yield is the amount of crop harvested per area of land. It is used to measure a crop's performance. This study used approximately 1.8 million agricultural census reports from 13,500 political units around the world to determine how crop yield changed over time. The dataset is presented at a spatial resolution of 5 arc minutes, which is approximately 10 kilometers x 10 kilometers at the equator, but changes with distance from the equator."

Citation:
Ray DK, N Ramankutty, ND Mueller, PC West, JA Foley. 2012. Recent patterns of crop yield growth, stagnation, and collapse. Nature Communications. 3:1293 doi: 10.1038/ncomms2296 Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Categorical maize, Categorical rice, Categorical soyabean, Categorical wheat

Year/s:	Format:	Resolution:	Units:
2008	.tif	5 arc minutes	Numeric

Source Link:
http://www.earthstat.org/yield-trends-changes-maize-soybean-rice-wheat/



Global Agro-ecological Zones - GAEZ 2015 - Crop Yield

Dataset Code: cropYield

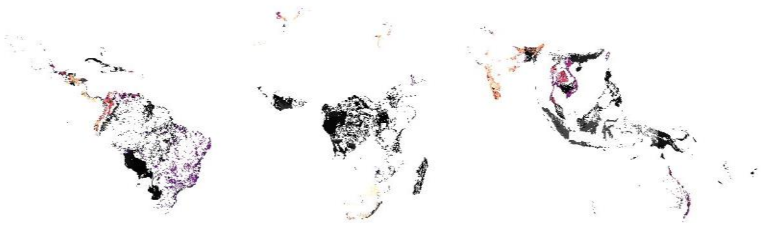
This dataset, GAEZ+_2015, provides global, gridded (5-arcminute resolution) irrigated and rainfed crop harvested areas, irrigated and rainfed crop production, and irrigated and rainfed crop yield for 26 different crops/crop categories

Citation:
Frolking, Steve; Wisser, Dominik; Grogan, Danielle; Proussevitch, Alexander; Glidden, Stanley, 2020, "GAEZ+_2015 Crop Yield", https://doi.org/10.7910/DVN/KAGRFI, Harvard Dataverse, V4

Layers:
Banana, Barley , Cassava, Cotton, CropsNES, Foddercrops, Groundnut , Maize , Millet , Oilpalmfruit , Olives , Othercereals , PotatoAndSweetpotato , Pulses , Rapeseed , Rice , Sorghum , Soybean , Stimulants , Sugarbeet , Sugarcane , Sunflower , Tobacco , Vegetables , Wheat , Yamsandotherroots

Year/s:	Format:	Resolution:	Units:
2015	.tif	nan	Numeric

Source Link:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/XGGJAV



Digital Elevation Model

Dataset Code: dem

Digital Elevation Model (DEM) data.

Citation:
Data developed and uploaded in Scotland by Jonathan de Ferranti, 2014. Interactive coverage maps supplied by Christoph Hormann.

Layers:
Digital Elevation Model

Year/s:	Format:	Resolution:	Units:
2014	.tif	15 arc-second	Numeric

Source Link:
http://viewfinderpanoramas.org/Coverage%20map%20viewfinderpanoramas_org15.htm

Development Potential Index

Dataset Code: developmentPotentialIndex

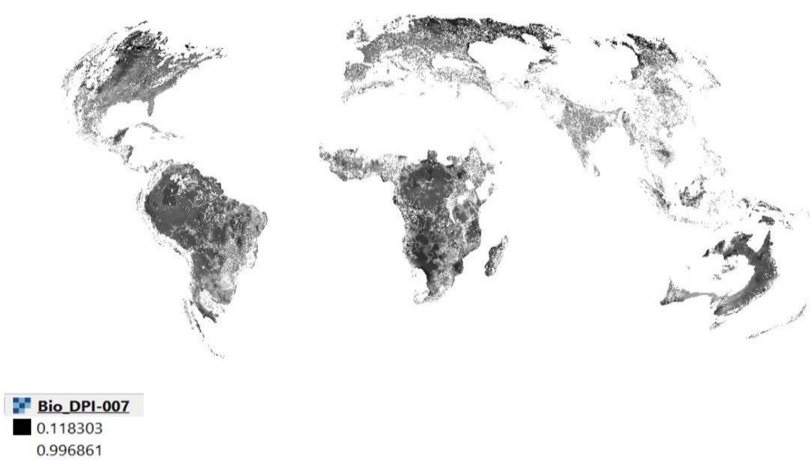
Development Potential Indices (DPIs) were generated with 1-km spatially-explicit global land suitability maps, for 13 sectors related to renewable energy (concentrated solar power, photovoltaic solar, wind, hydropower), fossil fuels (coal, conventional and unconventional oil and gas), mining (metallic, non-metallic), and agriculture (crop, biofuels expansion).

Citation:
Oakleaf, J. R., Kennedy, C. M., Baruch-Mordo, S., Gerber, J. S., West, P. C., Johnson, J. A., Kiesecker, J. (2019). Mapping global development potential for renewable energy, fossil fuels, mining and agriculture sectors. Scientific Data, 6(1), 1–17. https://doi.org/10.1038/s41597-019-0084-8

Layers:
Biofuels Development Potential Index, Coal Development Potential Index, Conventional Gas Development Potential Index, Conventional Oil Development Potential Index, Crop Expansion Development Potential Index, Concentrated Solar Power Development Potential Index, Hydroelectric Development Potential Index, Metallic Mining Development Potential Index, Non-metallic Mining Development Potential Index, Photovoltaic Solar Power Development Potential Index, Unconventional Gas Development Potential Index, Unconventional Oil Development Potential Index, Wind Power Development Potential Index

Year/s:	Format:	Resolution:	Units:
2016	.tif	1km	Numeric

Source Link:
https://s3.amazonaws.com/DevByDesign-Web/Maps/DPI_viewer/index.html



Predicted Low-Voltage Infrastructure

Dataset Code: electrification

Composite map of the global power system, modeled.

Citation:
C. Arderne, C. Zorn, C. Nicolas, and E. E. Koks, "Predictive mapping of the global power system using open data," Sci. Data, vol. 7, no. 1, pp. 1–12, 2020, doi: 10.1038/s41597-019-0347-4.

Layers:
Predicted Low-voltage Infrastructure

Year/s:	Format:	Resolution:	Units:
2020	.tif	1km	Numeric

Source Link:
https://zenodo.org/record/3538890

Projected Change in Extreme Precipitation Days

Dataset Code: extremePrecipitation

The Projected Change in Extreme Precipitation Days dataset shows the change in annual average days of extreme precipitation at ten year intervals between 2000 and 2080, compared to a baseline time period of 1960-1990. An extreme precipitation day is defined as a day where precipitation is greater than the 99th percentile precipitation compared to the baseline period. The data shown at each ten year interval represents a 31-year average, centered around the indicated year. For example, the number of extreme precipitation days in 2000 is actually an average of the annual number of extreme precipitation days between the years 1985 and 2015.

Citation:

Gassert, F., Cornejo, E., Nilson, E. (2021). Making Climate Data Accessible: Methods for Producing NEX-GDDP and LOCA Downscaled Climate Indicators. World Resources Institute, March, 1–16. https://doi.org/10.46830/writn.19.00117Available online at https://www.wri.org/research/making-climate-data-accessible. www.resourcewatch.org.

Layers:

Projected Change in Extreme Precipitation Days

Year/s:	Format:	Resolution:	Units:
1985-2015-2065-2095	.tif	0.25 degrees	Numeric

Source Link:
https://resourcewatch.org/data/explore/cli059a-Projected-Change-in-Extreme-Precipitation-Days-RCP85

Global Flood Proportional Economic Loss Risk Deciles

Dataset Code: floodEconomicLoss

The Global Flood Proportional Economic Loss Risk Deciles is a 2.5 minute grid of flood hazard economic loss as proportions of Gross Domestic Product (GDP) per analytical unit. Estimates of GDP at risk are based on regional economic loss rates derived from historical records of the Emergency Events Database (EM-DAT).

Citation:

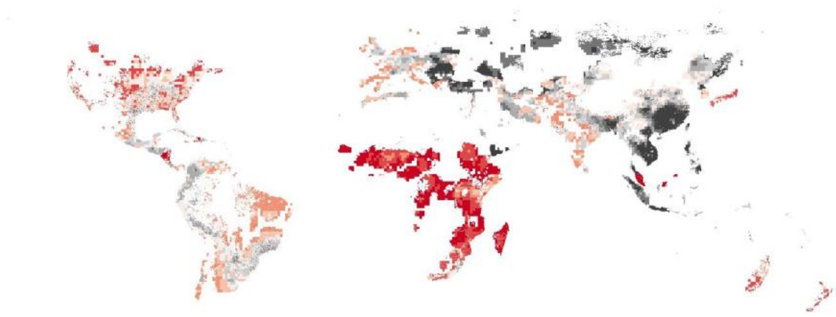
Dilley, M., R.S. Chen, U. Deichmann, A.L. Lerner-Lam, M. Arnold, J. Agwe, P. Buys, O. Kjekstad, B. Lyon, and G. Yetman. 2005. Natural Disaster Hotspots: A Global Risk Analysis. Washington, D.C.: World Bank. http://documents.worldbank.org/curated/en/621711468175150317/Natural-disaster-hotspots-A-global-risk-analysis.

Layers:

Global Flood Proportional Economic Loss Risk Deciles

Year/s:	Format:	Resolution:	Units:
2000	.tif	2.5 minute	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/ndh-flood-proportional-economic-loss-risk-deciles



FLOPROS – Flood Protection Standards

Dataset Code: flopros

FLOPROS: An evolving global database of flood protection standards includes information on minimum value of river, maximum value of river, minimum value of coastal, maximum value of coastal flood protection standards both in the Design and Policy layer

Citation:

Scussolini, P., Aerts, J. C. J. H., Jongman, B., Bouwer, L. M., Winsemius, H. C., de Moel, H., and Ward, P. J.: FLOPROS: an evolving global database of flood protection standards, Nat. Hazards Earth Syst. Sci., 16, 1049–1061, https://doi.org/10.5194/nhess-16-1049-2016, 2016

Layers:

FLOPROS – Flood Protection Standards

Year/s:	Format:	Resolution:	Units:
2016	.shp	nan	Numeric

Source Link:
https://nhess.copernicus.org/articles/16/1049/2016/

Global Forest Biomass

Dataset Code: forestBiomass

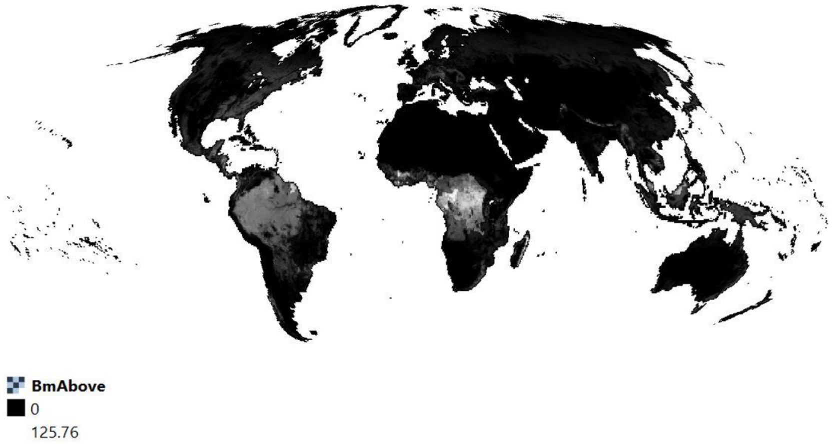
Composite map of the with Above ground Biomass in Forest Area

Citation:
Kindermann, G. E., McCallum, I., Fritz, S., Obersteiner, M. (2008). A global forest growing stock, biomass and carbon map based on FAO statistics. Silva Fennica, 42(3), 387–396. https://doi.org/10.14214/sf.244

Layers:
Above ground Biomass in Forest Area, Above ground Biomass, Below ground Biomass in Forest Area, Below ground Biomass, Dead wood Biomass in Forest Area, Dead wood Biomass, Total Biomass in Forest Area, Total Biomass, Above ground Carbon in Forest Area, Above ground Carbon, Below ground Carbon in Forest Area, Below ground Carbon, Dead wood Carbon in Forest Area, Dead wood Carbon, Litter Carbon in Forest Area, Litter Carbon, Soil Carbon in Forest Area, Soil Carbon, Forest Share, Land Share, Growing stock in Forest Area, Growing stock

Year/s:	Format:	Resolution:	Units:
2008	.tif	0.5 degree	Numeric

Source Link:
https://webarchive.iiasa.ac.at/Research/FOR/biomass.html



Forest Landscape Restoration

Dataset Code: forestRestorationOpportunity

The Forest and Landscape Restoration Opportunities dataset is a global dataset that shows where degraded forest lands have the potential to be restored. The dataset was created in 2011 based on current and historic forest extent data at a spatial resolution of 1 kilometer (km). It presents the results as three different forms of forest restoration: wide-scale, mosaic, and remote. Wide-scale restoration aims to restore closed forests (canopy density greater than 45%) in areas where they previously dominated the landscape.

Citation:

Potapov, Peter, Lars Laestadius, and Susan Minnemeyer. 2011. "Global map of forest landscape restoration opportunities." World Resources Institute: Washington, DC. Online at www.wri.org/forest-restoration-atlas. Accessed through Resource Watch, (26 April 2022). (www.resourcewatch.org](https://www.resourcewatch.org/).

Layers:

Forest Restoration Opportunity

Year/s:	Format:	Resolution:	Units:
2011	.gdb	1 km	Numeric

Source Link:
https://resourcewatch.org/data/explore/for013-Forest-Landscape-Restoration-Opportunity

Global dataset of historical yields

Dataset Code: gdhy

The Global Dataset of Historical Yield (GDHYv1.2+v1.3) offers annual time series data of 0.5-degree grid-cell yield estimates of major crops worldwide for the period 1981-2016. The crops considered in this dataset are maize, rice, wheat and soybean. The unit of yield data is t/ha. The grd-cell yield data were estimated using the satellite-derived crop-specific vegetation index and FAO-reported country yield statistics. Maize and rice have the data for each of two growing seasons (major/secondary). "Winter" and "spring" are used as the growing season categories for wheat. Only "major" growing season is available for soybean

Citation:

Løvholt, F., Griffin, J. Salgado-Gàlvez, M. (2016). Tsunami hazard and risk assessment at a global scale. In: Meyers, R. (ed.) Encyclopedia of Complexity and Systems Science. Springer Science Business Media, New York, https://doi.org/10.1007/978-3-642-27737-5_642-1 NGI and Geoscience Australia (2015) UNISDR Global Assessment Report 2015 - GAR15, Tsunami methodology and result overview. NGI report 20120052-03-R

Layers:

Maize yield estimate , Maize yield estimate (major growing season) , Maize yield estimate (secondary growing season) , Rice yield estimate , Rice yield estimate (major growing season) , Rice yield estimate (secondary growing season) , Soybean yield estimate , Wheat yield estimate , Wheat yield estimate (spring) , Wheat yield estimate (winter)

Year/s:	Format:	Resolution:	Units:
1981-2015	.nc	nan	Numeric

Source Link:
https://doi.pangaea.de/10.1594/PANGAEA.909132

GDP per Capita

Dataset Code: GDPperCapita

GDP (PPP) represents total gross domestic production in a given grid cell in constant 2011 international US dollars.

Citation:

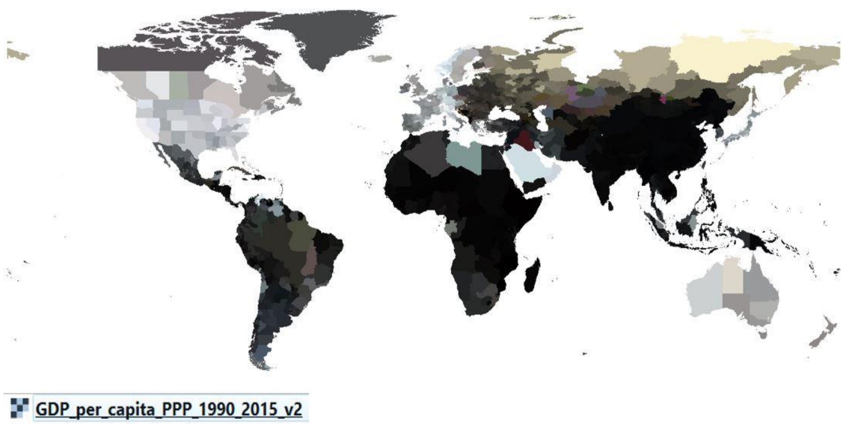
M. Kummu, M. Taka, J. H. A. Guillaume, and S. Characteristic, "Data Descriptor: Gridded global datasets for Gross Domestic Product and Human Development Index over 1990-2015 Background Summary," 2018, doi: 10.1038/sdata.2018.4.

Layers:

GDP per Capita

Year/s:	Format:	Resolution:	Units:
2015	.nc	5 arc-minute	Numeric

Source Link:
https://datadryad.org/stash/dataset/doi:10.5061/dryad.dk1j0



nan

Dataset Code: globalCriticalHabitat

nan

Citation:
nan

Layers:
Global Critical Habitat screening layer

Year/s:	Format:	Resolution:	Units:
2017	.tif	nan	nan

Source Link:
https://data.unep-wcmc.org/datasets/44

Global Tsunami Hazard

Dataset Code: globalTsunamiHazard

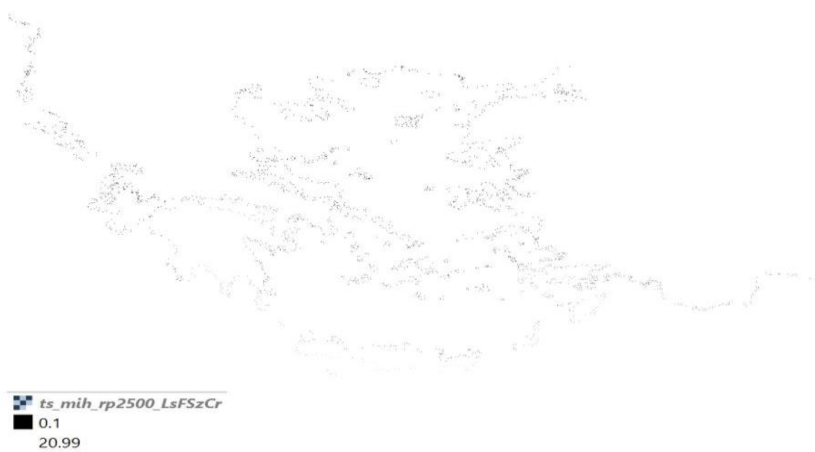
Tsunami Maximum Inundation Height (MIH) hazard data at global level for 10 year return period

Citation:
Davies, G., Griffin, J., Løvholt, F., Glimsdal, S., Harbitz C., Thio, H.K., Lorito, S., Basili, R., Selva, J., Geist, E., and Baptista, M.A. (2017), A global probabilistic tsunami hazard assessment from earthquake sources, Geological Society, London, Special Publications, 456, doi:10.1144/SP456.5

Layers:
Global Tsunami Hazard GTM RP10, Global Tsunami Hazard GTM RP50, Global Tsunami Hazard GTM RP100, Global Tsunami Hazard GTM RP200, Global Tsunami Hazard GTM RP500, Global Tsunami Hazard GTM RP1000, Global Tsunami Hazard GTM RP2500

Year/s:	Format:	Resolution:	Units:
2017	.tif	nan	Numeric

Source Link:
https://www.geonode-gfdrrlab.org/layers/hazard:ts_mih_rp10



Gridded Livestock Density

Dataset Code: griddedLivestock

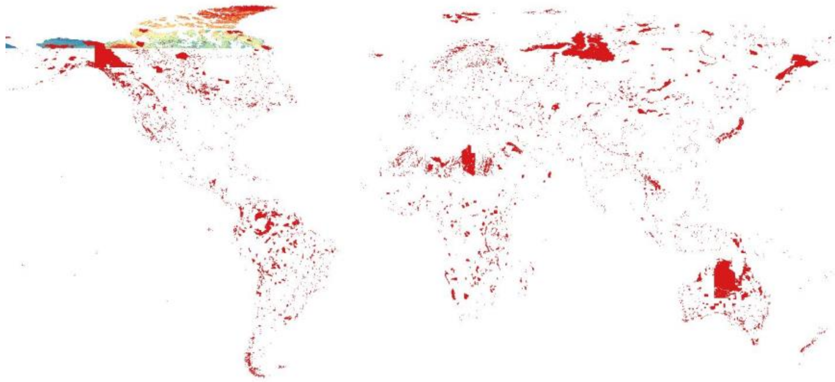
This dataset contains the most up to date version of GLW 3 for the reference year 2010 and the following species: cattle, sheep, goats, horses, pigs, chickens and ducks. The individual species datasets are available at global extent and 5 minutes of arc resolution (approx. 10 km at the equator), and national extent 30 seconds of arc resolution (approx. 1 km at the equator) will be added as they become available.

Citation:
Gilbert M, G Nicolas, G Cinardi, S Vanwambeke, TP Van Boeckel, GRW Wint, TP Robinson (2018) Global Distribution Data for Cattle, Buffaloes, Horses, Sheep, Goats, Pigs, Chickens and Ducks in 2010. Nature Scientific data, 5:180227. doi: 10.1038/sdata.2018.227

Layers:
Aerial Weighted Product, Dasymetric Product, Aerial Weighted Prediction Status

Year/s:	Format:	Resolution:	Units:
2000	.tif	0.08333 degrees	Numeric

Source Link:
https://data.apps.fao.org/map/catalog/srv/eng/catalog.search#/metadata/47457ad7-ed00-4346-81e2-85aacd0e6d91



Gridded Species Distribution

Dataset Code: griddedSpecies

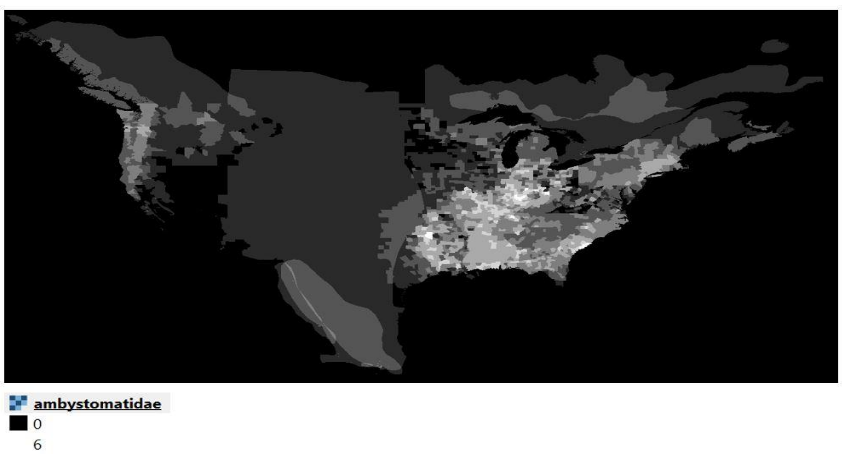
The Gridded Species Distribution data collection contains richness grids for amphibian and mammal families, and IUCN Red List Threat categories which include all species that are threatened (All Threats), Critically Endangered, Endangered, and Vulnerable. The download facility allows for users to locate and download 30 arc-second (~1 kilometer) resolution rasters of the species family and threat categories. The grids are available in GeoTIFF format.

Citation:
Rodó, Xavier; San-José, Adrià; Kirchgatter, Karin; López, Leonardo. 2021. Changing climate and the COVID-19 pandemic: more than just heads or tails. [Nature Medicine] . 27(4): 576-579 DOI: https://doi.org/10.1038/s41591-021-01303-y

Layers:
Global Mammal Richness Grids, Global Amphibians Richness Grids

Year/s:	Format:	Resolution:	Units:
2015	.tif	30 arc-second	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/species-global-mammal-richness-2015/data-download



Harmonized World Soil Database

Dataset Code: harmonizedWorldSoil

Vast volumes of recently collected regional and national updates of soil information collected by the partners were assimilated and harmonized by IIASA, where the HWSD raster, database, and viewer software were designed, implemented, and packaged for CD and web distribution into this state-of-the-art database. Version 1.0 was released in 2008. Since then, it has been updated with new information several times, has been used extensively around the world, and has recently been adopted by the Global Soil Partnership (GSP) as the definitive soil database at present, with plans for further updates made as part of the GSP process.

Citation:
FAO/IIASA/ISRIC/ISSCAS/JRC, 2012. Harmonized World Soil Database (version 1.2). FAO, Rome, Italy and IIASA, Laxenburg, Austria.

Layers:
Harmonized World Soil Database v 1.2

Year/s:	Format:	Resolution:	Units:
2012	.tif file	1 km	Categorical

Source Link:
http://webarchive.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/

Projected Change in Extreme Heat Days

Dataset Code: heatDays

The Projected Change in Extreme Heat Days dataset shows the change in the average number of days of extreme heat at ten year intervals between 2000 and 2080, compared to a baseline time period of 1960-1990. An extreme heat day is a day where the maximum temperature is greater than the 99th percentile maximum temperature during the baseline period.

Citation:

Gassert, F., Cornejo, E., Nilson, E. (2021). Making Climate Data Accessible: Methods for Producing NEX-GDDP and LOCA Downscaled Climate Indicators. World Resources Institute, March, 1–16. https://doi.org/10.46830/writn.19.00117 Available online at https://www.wri.org/research/making-climate-data-accessible. www.resourcewatch.org.

Layers:

Projected Change in Extreme Heat Days

Year/s:	Format:	Resolution:	Units:
2015-2095	.tif	0.25 degrees	Numeric

Source Link:
https://resourcewatch.org/data/explore/cli056a-Projected-Change-in-Extreme-Heat-Days-RCP85?section=Discover==3=0=0=0=0=dark=light=%255B%257B%2522dataset%2522%253A%25223941bbba-181b-434a-84c3-fcdfa5234735%2522%252C%2522opacity%2522%253A1%252C%2522layer%2522%253A%2522b4b944ae-4b90-427c-8d80-1282a96c94b6%2522%257D%255D==1=most-viewed=-1

stacked-ch-annual_pr_rcp45_ens_1985-2015

Human Footprint, 2018 Release (2009)

Dataset Code: humanFootprint

The 2009 Human Footprint, 2018 Release provides a global map of the cumulative human pressure on the environment in 2009, at a spatial resolution of ~1 km.

Citation:

Venter, O., E. W. Sanderson, A. Magrach, J. R. Allan, J. Beher, K. R. Jones, H. P. Possingham, W. F. Laurance, P. Wood, B. M. Fekete, M. A. Levy, and J. E. Watson. 2018. Last of the Wild Project, Version 3 (LWP-3): 2009 Human Footprint, 2018 Release. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H46T0JQ4. Accessed 26 April 2022.

Venter, O., E. W. Sanderson, A. Magrach, J. R. Allan, J. Beher, K. R. Jones, H. P. Possingham, W. F. Laurance, P. Wood, B. M. Fekete, M. A. Levy, and J. E. Watson. 2016. Sixteen Years of Change in the Global Terrestrial Human Footprint and Implications for Biodiversity Conservation. Nature Communications 7:12558. https://doi.org/10.1038/ncomms12558.

Layers:

Human Footprint 2018 Release

Year/s:	Format:	Resolution:	Units:
2009	.tif	~1 km	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/wildareas-v3-2009-human-footprint

Human Impacts on Oceans

Dataset Code: humanImpactOceans

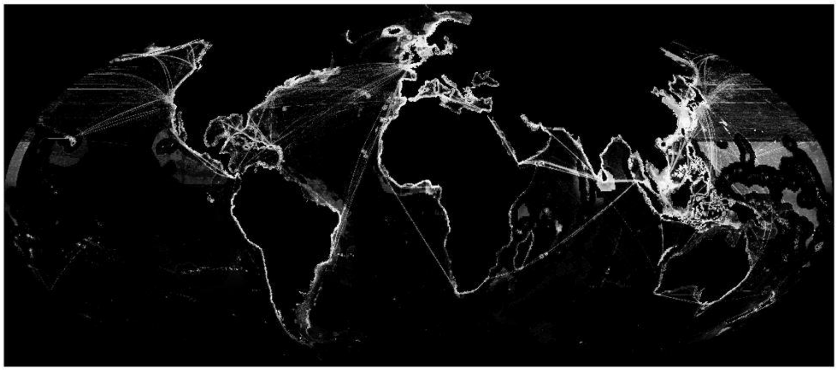
Seven different factors of uncertainty were tested in 3000 simulations, each of which produced a map of the human impact on different parts of the ocean. Within each map, the 10% and 25% of ocean areas with the highest and lowest human impacts, respectively, were identified. The number of times each grid cell was categorized as a high-impact area or a low-impact area was counted. This map shows grid cells that were identified in each category in 75-90% of the simulation runs (High/Low Impact Likely) and in over 90% of the simulation runs (High/Low Impact Very Likely). Data excluding climate change stressors is also available.

Citation:
Stock, A., Crowder, L. B., Halpern, B. S., Micheli, F. (2018). Uncertainty analysis and robust areas of high and low modeled human impact on the global oceans. Conservation Biology. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org

Layers:
climate change included, climate change excluded

Year/s:	Format:	Resolution:	Units:
2018	.tif	5km	Numeric

Source Link:
https://resourcewatch.org/data/explore/bio043-Human-Impacts-on-Oceans



highest10p_no_cc
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100

Global Human Modification of Terrestrial Systems, v1 (2016)

Dataset Code: humanModification

The Global Human Modification of Terrestrial Systems data set provides a cumulative measure of the human modification of terrestrial lands across the globe. It is a continuous 0-1 metric that reflects the proportion of a landscape modified, based on modeling the physical extents of 13 anthropogenic stressors and their estimated impacts using spatially-explicit global data sets with a median year of 2016.

Citation:

Kennedy, C. M., J. R. Oakleaf, D. M. Theobald, S. Baruch-Mordo, and J. Kiesecker. 2020. Global Human Modification of Terrestrial Systems. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/edbc-3z60. Accessed 26 April 2022.

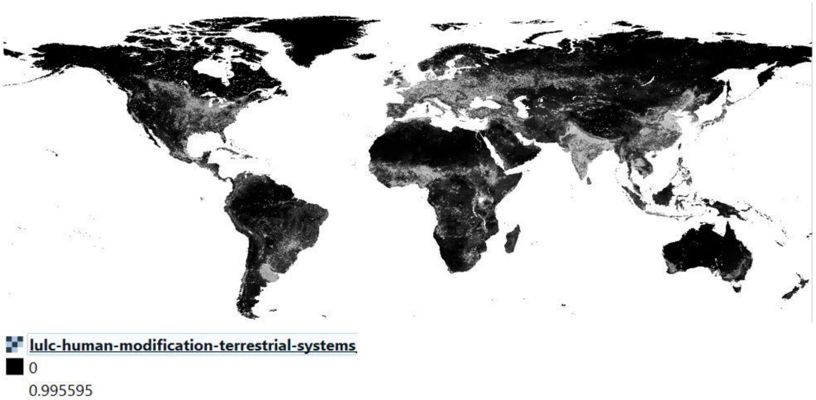
Kennedy, C. M., J. R. Oakleaf, D. M. Theobald, S. Baruch-Mordo and J. Kiesecker. 2019. Managing the Middle: A Shift in Conservation Priorities Based on the Global Human Modification Gradient. Global Change Biology 25(3): 811- 826. https://doi.org/10.1111/gcb.14549.

Layers:

Global Human Modification of Terrestrial Systems, v1 (2016)

Year/s:	Format:	Resolution:	Units:
2016	.tif	1 km	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/lulc-human-modification-terrestrial-systems



HYDE Historical Anthropogenic Biomes

Dataset Code: hydeAnthromes

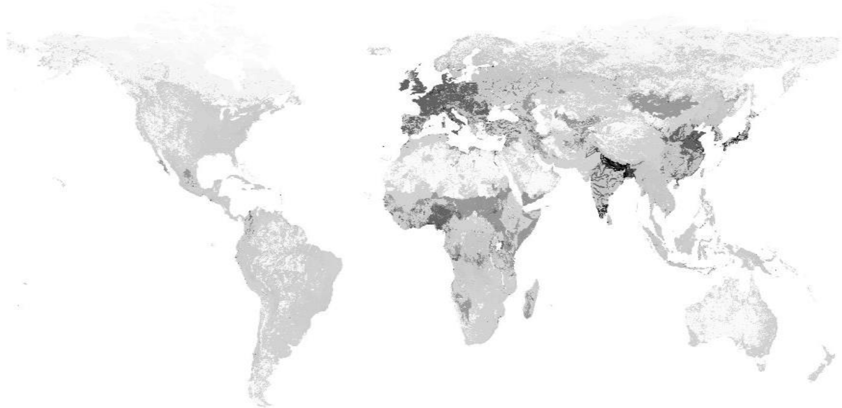
The History Database of the Global Environment (HYDE version 3.2), is a combination of gridded historical population and land use estimates. The authors used historical records to model population at the province level and land use areas at the national level through time; then used algorithms to spatially distribute the total population and land use areas to 5 arc minute pixels (about 10 kilometers at the equator).

Citation:
Goldewijk, K. K., Beusen, A., Doelman, J., Stehfest, E. (2017). Anthropogenic land use estimates for the Holocene - HYDE 3.2. Earth System Science Data, 9(2), 927–953. https://doi.org/10.5194/essd-9-927-2017. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
History database of the Global Environment (HYDE) version 3.2

Year/s:	Format:	Resolution:	Units:
0AD-900AD	.tif	5 arc minutes	Numeric

Source Link:
https://dataportaal.pbl.nl/downloads/HYDE/HYDE3.2/



HydroSHEDS

Dataset Code: hydrosheds

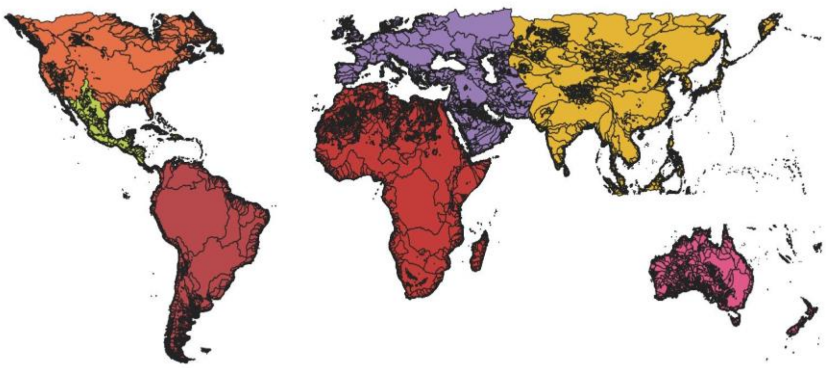
HydroSHEDS data products are provided in three broad categories: core products (gridded maps of elevation, flow directions and flow accumulation), secondary products (derived vector maps of catchments, rivers, and lakes with attribute information), and associated products (products that are co-registered to HydroSHEDS).

Citation:
Lehner, B., Verdin, K., Jarvis, A. (2008). New global hydrography derived from spaceborne elevation data. Eos, Transactions, American Geophysical Union, 89(10): 93–94. https://doi.org/10.1029/2008eo100001

Layers:
Africa, Asia, Australasia, Central America, Europe, North America, South America

Year/s:	Format:	Resolution:	Units:
2006	.shp	3-6 arcseconds	Categorical

Source Link:
https://www.hydrosheds.org/page/availability



IHME Global Burden of Disease

Dataset Code: ihme

The Global Burden of Disease (GBD) provides a tool to quantify health loss from hundreds of diseases, injuries, and risk factors, so that health systems can be improved and disparities can be eliminated.

Citation:
Institute for Health Metrics and Evaluation (IHME). GBD Results. Seattle, WA: IHME, University of Washington, 2020. Available from https://vizhub.healthdata.org/gbd-results/. (Accessed [26 April 2022])

Layers:
Males, Mean, Females, Mean, Both Sexes, Mean

Year/s:	Format:	Resolution:	Units:
2000-2010	.tif	5km	Numeric

Source Link:
http://ghdx.healthdata.org/record/ihme-data/global-under-5-overweight-prevalence-geospatial-estimates-2000-2019

ISRIC - World Soil Information

Dataset Code: isric

WISE3 holds selected attribute data for some 10,250 soil profiles, with some 47,800 horizons, from 149 countries. Individual profiles have been sampled, described, and analyzed according to methods and standards in use in the originating countries. There is no uniform set of properties for which all profiles have analytical data, generally because only selected measurements were planned during the original surveys.

Citation:

Batjes, N. H. (2009). Harmonized soil profile data for applications at global and continental scales: Updates to the WISE database. Soil Use and Management, 25(2), 124–127. https://doi.org/10.1111/j.1475-2743.2009.00202.x

Layers:

Global Soil Salinity Map 2016, WISE30sec

Year/s:	Format:	Resolution:	Units:
1986-2016	*.tif	nan	Categorical

Source Link:
https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/c59d0162-a258-4210-af80-777d7929c512

Accessibility To Cities

Dataset Code: malariaAtlas

Global accessibility to high-density urban centres at a resolution of 1×1 kilometre for 2015, as measured by travel time.

Citation:
Weiss DJ., Nelson A., Gibson HS., Temperley WH., Peedell S., Lieber A., Hancher M., Poyart E., Belchior S., Fullman N., Mappin B., Dalrymple U., Rozier J., Lucas TCD., Howes RE., Tusting LS., Kang SY., Cameron E., Bisanzio D., Battle KE., Bhatt S., Gething PW., A global map of travel time to cities to assess inequalities in accessibility in 2015 Nature. January 2018 553: 333–336.

Layers:
Accessibility to Cities, Friction Surface, Motorized Travel time to Healthcare, Motorized Friction Surface, Walking only Travel time to Heatlhcare, Walking only Friction Surface

Year/s:	Format:	Resolution:	Units:
2015-2020	.tif	1km, 30 arc-second	Numeric

Source Link:
https://malariaatlas.org/research-project/accessibility-to-cities/

Aboveground Live Woody Biomass Density

Dataset Code: mangroveBiomass

The Aboveground Live Woody Biomass Density data set, created by the Woods Hole Research Center and Dan Zarin, expands on the methodology presented in Baccini et al. (2012) to generate a pantropical map of aboveground live woody biomass density at 30 m resolution for the year 2000.

Citation:

Baccini, A., Walker, W., Carvalho, L., Farina, M., Houghton, R. A. (2019). Response to Comment on "Tropical forests are a net carbon source based on aboveground measurements of gain and loss." Science, 363(6423), 1–11. https://doi.org/10.1126/science.aat1205. Accessed through Resource Watch, (26 April 2022).

Layers:

Aboveground Live Woody Biomass Density

Year/s:	Format:	Resolution:	Units:
2012	.shp	30 m	Numeric

Source Link:
https://resourcewatch.org/data/explore/cli018-Aboveground-Mangrove-Biomass-Density

Mangrove Forests

Dataset Code: mangroves

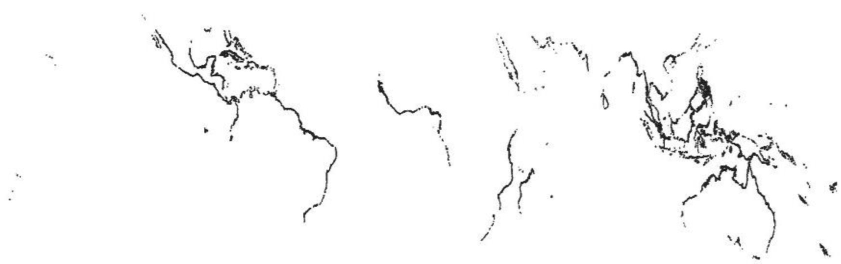
This is the first global map of mangrove extent produced using an automated, reproducible, and globally consistent methodology, using a combination of optical and radar satellite data.

Citation:
Bunting, P., Rosenqvist, A., Lucas, R. M., Rebelo, L. M., Hilarides, L., Thomas, N., Hardy, A., Itoh, T., Shimada, M., Finlayson, C. M. (2018). The global mangrove watch - A new 2010 global baseline of mangrove extent. Remote Sensing, 10(10). https://doi.org/10.3390/rs10101669. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:
Mangrove Forests

Year/s:	Format:	Resolution:	Units:
2016	.shp	0.8 arc seconds	Numeric

Source Link:
https://data.unep-wcmc.org/datasets/45



MapSPAM

Dataset Code: mapSpam

Using a variety of inputs, SPAM uses a cross-entropy approach to make plausible estimates of crop distribution within disaggregated units.

We start with the administrative (geopolitical) units for which we have been able to obtain production statistics. These may typically be national or sub-national administrative regions such as countries, states, districts, or counties. The smaller the administrative units, the better the results. We receive an already classified land-cover image, where cropland has been identified. We integrate crop-specific suitability information based on local landscape, climate and soil conditions, which provides information on how MUCH cropland exists at the pixel level. Combining all these input data and some more parameters the model applies a cross-entropy approach to obtain the final estimation of crop distribution.

Citation:

Qiangyi Yu, Liangzhi You, Ulrike Wood-Sichra, Yating Ru, Alison K. B. Joglekar, Steffen Fritz, Wei Xiong, Miao Lu, Wenbin Wu, and Peng Yang (2010). A cultivated planet in 2010 – Part 2: The global gridded agricultural-production maps. Earth System Science Data. https://doi.org/10.5194/essd-2020-11

Layers:

Wheat -all technologies together, Wheat-rainfed high inputs portion of crop, Wheat-irrigated portion of crop, Wheat-rainfed low inputs portion of crop, Wheat-rainfed portion of crop, Wheat-rainfed subsistence portion of crop, Rice-all technologies together, Rice-rainfed high inputs portion of crop, Rice-irrigated portion of crop, Rice-rainfed low inputs portion of crop, Rice-rainfed portion of crop, Rice-rainfed subsistence portion of crop, Maize-all technologies together, MAIZE-rainfed high inputs portion of crop, MAIZE-irrigated portion of crop, MAIZE-rainfed low inputs portion of crop, MAIZE-rainfed portion of crop, MAIZE-rainfed subsistence portion of crop, BARLEY-all technologies together, BARLEY-rainfed high inputs portion of crop, BARLEY-irrigated portion of crop, BARLEY-rainfed low inputs portion of crop, BARLEY-rainfed portion of crop, BARLEY-rainfed subsistence portion of crop, PEARL MILLET-all technologies together, PEARL MILLET-rainfed high inputs portion of crop, PEARL 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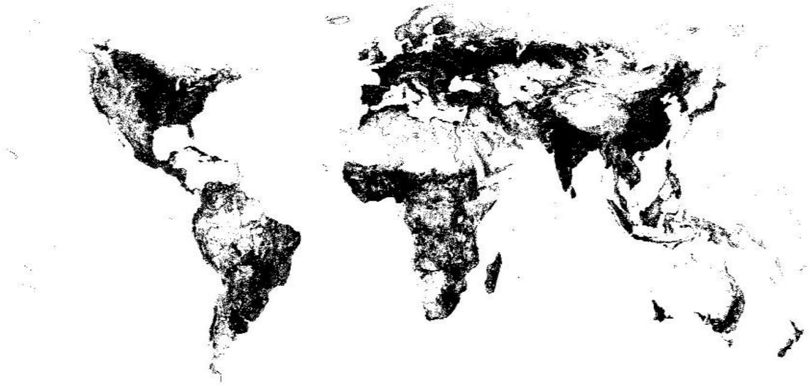
Year/s:	Format:	Resolution:	Units:
2010	.tif	1km	Numeric

Source Link:
https://www.mapspam.info/




RISING UP
FOR
SIDS

Projected Change in Annual Average Maximum Temperature

Dataset Code: maxTempChange

The Projected Change in Annual Average Maximum Temperature dataset shows the change in annual average maximum temperature at ten year intervals between 2000 and 2080, compared to a baseline time period of 1960-1990.

Citation:

Gassert, F., Cornejo, E., Nilson, E. (2021). Making Climate Data Accessible: Methods for Producing NEX-GDDP and LOCA Downscaled Climate Indicators. World Resources Institute, March, 1–16. https://doi.org/10.46830/writn.19.00117 Available online at https://www.wri.org/research/making-climate-data-accessible. www.resourcewatch.org.

Layers:

Projected Change in Annual Average Maximum Temperature

Year/s:	Format:	Resolution:	Units:
2015-2095	.tif	0.25 degrees	Numeric

Source Link:
https://resourcewatch.org/data/explore/cli056a-Projected-Change-in-Extreme-Heat-Days-RCP85?section=Discover==3=0=0=0=0=dark=light=%255B%257B%2522dataset%2522%253A%25223941bbba-181b-434a-84c3-fcdfa5234735%2522%252C%2522opacity%2522%253A1%252C%2522layer%2522%253A%2522b4b944ae-4b90-427c-8d80-1282a96c94b6%2522%257D%255D==1=most-viewed=-1

Global Multihazard Frequency and Distribution

Dataset Code: multiHazard

The Global Multihazard Frequency and Distribution is a 2.5 minute grid presenting a simple multihazard index based solely on summated single-hazard decile values. The hazards of interest include cyclones, droughts, earthquakes, floods, landslides, and volcanoes.

Citation:

Dilley, M., R.S. Chen, U. Deichmann, A.L. Lerner-Lam, M. Arnold, J. Agwe, P. Buys, O. Kjekstad, B. Lyon, and G. Yetman. 2005. Natural Disaster Hotspots: A Global Risk Analysis. Washington, D.C.: World Bank. http://documents.worldbank.org/curated/en/621711468175150317/Natural-disaster-hotspots-A-global-risk-analysis.

Layers:

Global Multihazard Frequency and Distribution

Year/s:	Format:	Resolution:	Units:
2000	.tif	2.5 minute	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/ndh-multihazard-frequency-distribution

Nighttime Lights (Annual, Stable Lights)

Dataset Code: nighttimeLights

The Defense Meteorological Satellite Program Operational Linescan System (DMSP-OLS) created the Annual Nighttime Lights: Stable Composites from 1992 until 2013 at a 30 arc second grid resolution (approximately 1 km square grids). These composites account for where light has been observed throughout an entire year. Pixels are identified as being "stable lights" when light is detected there in more than 90-94% of valid observations.

Citation:
Elvidge, C. D., Baugh, K. E., Kihn, E. A., Kroehl, H. W., Davis, E. R. (1997). Mapping city lights with nighttime data from the DMSP Operational Linescan System. Photogrammetric Engineering and Remote Sensing, 63(6), 727–734. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Nighttime Lights (Average), Nighttime Lights (Web cf), Nighttime Lights (Annual, Stable Lights)

Year/s:	Format:	Resolution:	Units:
2013	.tif	30 arc seconds	Numeric

Source Link:
https://resourcewatch.org/data/explore/Nighttime-Lights-Annual-Stable

Projected Ocean Acidification

Dataset Code: oceanAcidification

This dataset shows projections of aragonite saturation in the world's oceans from 2006-2099. The aragonite saturation state (Ωarag) is commonly used to track ocean acidification because it is a measure of carbonate ion concentration, which indicates the availability of the calcium carbonate that is widely used by marine calcifiers, from lobsters to clams to starfish.

Citation:
Van Hooidonk, R., Maynard, J. A., Manzello, D., Planes, S. (2014). Opposite latitudinal gradients in projected ocean acidification and bleaching impacts on coral reefs. Global Change Biology, 20(1), 103–112. https://doi.org/10.1111/gcb.12394. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:
Projected Ocean Acidification

Year/s:	Format:	Resolution:	Units:
2009-2098	.lpk	One degree	Numeric

Source Link:
https://coralreefwatch.noaa.gov/climate/projections/downscaled_bleaching_4km/index.php

Ocean Depth

Dataset Code: oceanDepth

Gridded Bathymetry Data in 10km Hexbins. These hexbins roughly extend 200km from each Small Island Developing State shown on the map.

Citation:
GEBCO Compilation Group (2022) GEBCO 2022 Grid (doi:10.5285/e0f0bb80-ab44-2739-e053-6c86abc0289c).

Layers:
Ocean Depth

Year/s:	Format:	Resolution:	Units:
2020	.tif	5 arc-second	Numeric

Source Link:
https://download.gebco.net/

Global Distributions of Habitat Suitability for Cold-Water Octocorals

Dataset Code: octocorals

This dataset contains the global distributions of habitat suitability for seven suborders of cold-water octocorals (Octocorallia) found deeper than 50 m: Alcyoniina, Calcaxonia, Holaxonia, Scleraxonia, Sessiliflorae, Stolonifera, and Subselliflorae.

Citation:

Yesson C, Taylor ML, Tittensor DP, Davies AJ, Guinotte J, Baco A, Black J, Hall-Spencer JM, Rogers AD (2012). Global habitat suitability of cold-water Octocorals. Journal of Biogeography 39: 1278-1292. doi: 10.1111/j.1365-2699.2011.02681.x Add to Citavi project by DOI; Data URL: http://doi.pangaea.de/10.1594/PANGAEA.775081

Layers:

Subselliflorae (ModelledOctocorals), Stolonifera (ModelledOctocorals), Sessiliflorae (ModelledOctocorals), Scleraxonia (ModelledOctocorals), Holaxonia (ModelledOctocorals), Calcaxonia (ModelledOctocorals), Alcyoniina (ModelledOctocorals)

Year/s:	Format:	Resolution:	Units:
2012	.tif	30 arc seconds	Numeric

Source Link:
https://data.unep-wcmc.org/datasets/40

Ocean Health Index

Dataset Code: ohi

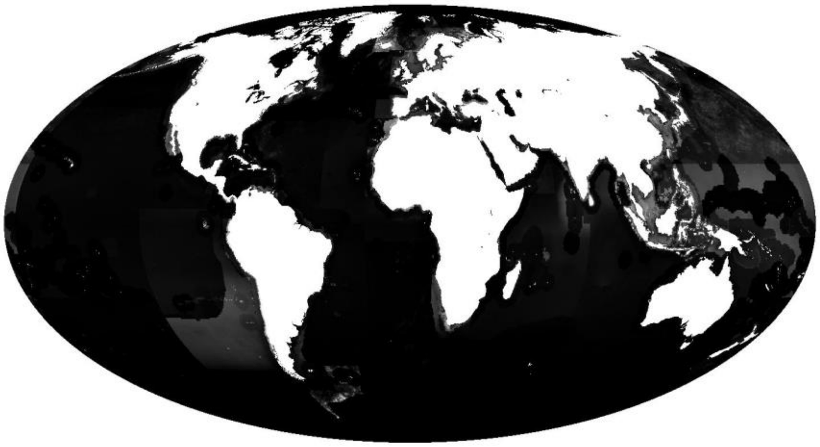
OHI+ assessments are conducted by independent groups to measure ocean health in their regions, countries, states, and communities. These assessments can be used by managers to incorporate local information and priorities at the spatial scale where policy and management decisions are made.

Citation:
Halpern, B.S., Frazier, M., Afflerbach, J. et al. Recent pace of change in human impact on the world's ocean. Sci Rep 9, 11609 (2019). https://doi.org/10.1038/s41598-019-47201-9

Layers:
artisinal,fishing, destructive,fishing, nodestructive,high,bycatch, nondestructive,low,bycatch, inorganic, invasives, night,lights, ocean,acidification, ocean,pollution, oil,rigs, pelagic,high,bycatch, pelagic,low,bycatch, plumes,fert, plumes,pest, shipping, sst, uv

Year/s:	Format:	Resolution:	Units:
2008	.tif	~1 km	Numeric

Source Link:
https://ohi-science.org/data/



Population Density

Dataset Code: populationDensity
The Gridded Population of the World, Version 4 (GPWv4) consists of estimates of human population (number of persons per pixel) consistent with national censuses and population registers with respect to relative spatial distribution.

Citation:
Center for International Earth Science Information Network - CIESIN - Columbia University. 2018. Gridded Population of the World, Version 4 (GPWv4): Population Count Adjusted to Match 2015 Revision of UN WPP Country Totals, Revision 11. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H4PN93PB. Accessed 26 April 2022.

Layers:
Population Density

Year/s:	Format:	Resolution:	Units:
2020	.nc	30 arc-seconds	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/gpw-v4-population-count-adjusted-to-2015-unwpp-country-totals-rev11/data-download

Potential Evapotranspiration

Dataset Code: potentialET

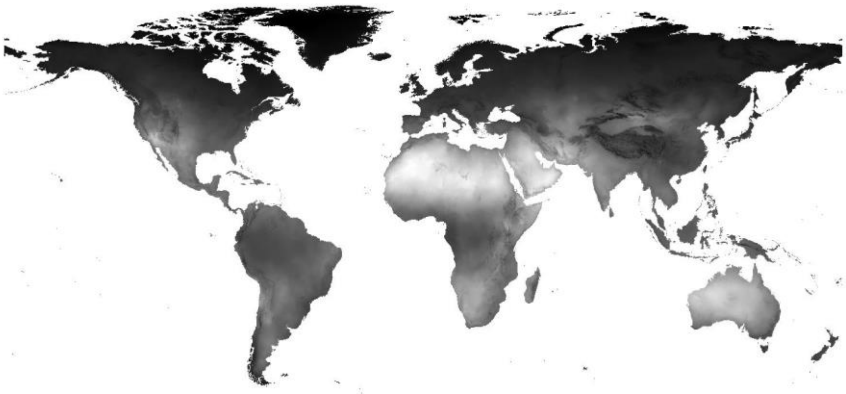
Potential evapotranspiration measures the ability of the atmosphere to remove water through evapotranspiration. In this dataset crop evapotranspiration (ET_0) is used as a measure of the evapotranspiration rate from a referenced and standardized vegetated surface (Food and Agriculture Organization of the United Nation (FAO). This concept of ET_0 is useful to study evaporative demand of the atmosphere in relation to climatic factors and independently of crop type, crop development, and management practices.Potential evapotranspiration measures the ability of the atmosphere to remove water through evapotranspiration. In this dataset crop evapotranspiration (ET_0) is used as a measure of the evapotranspiration rate from a referenced and standardized vegetated surface (Food and Agriculture Organization of the United Nation (FAO). This concept of ET_0 is useful to study evaporative demand of the atmosphere in relation to climatic factors and independently of crop type, crop development, and management practices.

Citation:
Trabucco, A., Zomer, R. J. (2019). Global Aridity Index and Potential Evapotranspiration (ET0) Climate Database v2. CGIAR Consortium for Spatial Information (CGIAR-CSI), January, 10. Dataset. https://doi.org/10.6084/m9.figshare.7504448.v3 Add to Citavi project by DOI. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:
Potential Evapotranspiration

Year/s:	Format:	Resolution:	Units:
2000	.tif	30arc seconds	Numeric

Source Link:
https://resourcewatch.org/data/explore/foo025-Potential-Evapotranspiration_4



Potential Natural Vegetation

Dataset Code: potentialVegetation

The Forest Landscape Integrity Index (FLII) dataset describes the degree of anthropogenic forest modification as of the beginning of 2019.

Citation:
Mueller, ND, JS Gerber, M Johnston, DK Ray, N Ramankutty, and JA Foley. 2012. Closing yield gaps through nutrient and water management. Nature doi: 10.1038/nature11420. 490:254-257 Manure and Atmospheric Deposition: West, PC, JS Gerber, ND Mueller, KA Brauman, KM Carlson, ES Cassidy, PM Engstrom, M Johnston, GK MacDonald, DK Ray, and S Siebert. 2014. Leverage points for improving food security and the environment. Science. 354:325-328. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:
Cold deciduous, Cold Evergreen needle leaf forest, Cool Evergreen needle leaf forest, Cool mixed forest, Cool temperate rainforest, Desert, Erect dwarf shrub tundra, Graminoid and forb tundra, Low and high shrub tundra, Protrate dwarf shrub tundra, Steppe, Temperate decisuous broadleaf forest, Temperate evergreen needle leaf open woodland, Temperate sclerophyll woodland and shrubland, Tropical deciduous broadleaf forest and woodland, Tropical evergreen broadleaf forest and woodland, Tropical evergreen broad leaf forest, Tropical savannah, Tropical semi evergreen broadleaf forest, Warm temperate evergreen and mixed forests, Xerophytic woods

Year/s:	Format:	Resolution:	Units:
2019	.tif	1 km	Numeric

Source Link:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/QQHCIK

Saltmarshes

Dataset Code: saltMarshes

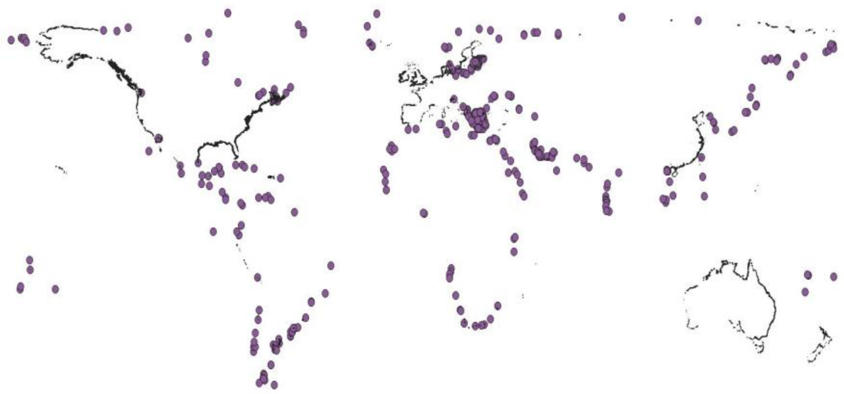
The Saltmarshes dataset displays the distribution of saltmarshes globally, drawing from occurrence data (surveyed and/or remotely sensed). The dataset captures location data for saltmarsh in 99 countries worldwide. The data were collected from 1973 to 2015, with most occurring after 2005

Citation:
Mcowen, C. J., Weatherdon, L. V., Van Bochove, J. W., Sullivan, E., Blyth, S., Zockler, C., Stanwell-Smith, D., Kingston, N., Martin, C. S., Spalding, M., Fletcher, S. (2017). A global map of saltmarshes. Biodiversity Data Journal, 5(1). https://doi.org/10.3897/BDJ.5.e11764. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Salt Marshes

Year/s:	Format:	Resolution:	Units:
2015-2016	.shp	nan	Categorical

Source Link:
https://doi.org/10.34892/07vk-ws51



Terrestrial Ecoregions

Dataset Code: terrestrialEcoregions

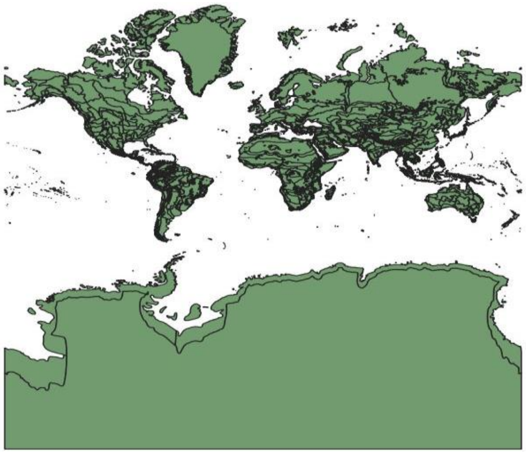
The Terrestrial Ecoregions data set released by The Nature Conservancy (TNC), and updated in 2019 from compilations of previous studies, classifies land into 14 major habitat types (MHTs). MHTs reflect groupings of ecoregions with similar biological, chemical, and physical characteristics. The MHTs refer to the dynamics of ecological systems and the broad habitat structures that define them. These groupings can provide a structured framework for examining and comparing the diversity of life in terrestrial systems.

Citation:
The Nature Conservancy. 2019. "tnc_terr_ecoregions." http://maps.tnc.org/gis_data.html. Accessed through Resource Watch, (date). www.resourcewatch.org.

Layers:
Terrestrial Ecoregions

Year/s:	Format:	Resolution:	Units:
2019	.shp	nan	Numeric

Source Link:
https://resourcewatch.org/data/explore/bio021a-Terrestrial-Ecoregions



Tsunami Event Historical Database

Dataset Code: tsunamiEvents

Tsunami Event Historical Database includes information on the source of the tsunami: source location, date, and time, event magnitude, maximum water height, total number of deaths, injuries and damage for the event

Citation:
National Geophysical Data Center / World Data Service (NGDC/WDS). 2017. Global Historical Tsunami Database. NOAA. doi:10.7289/V5PN93H7 (26 April 2022). Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:
Global - Tsunami Event Historical Database

Year/s:	Format:	Resolution:	Units:
2018	.shp	nan	Numeric

Source Link:
https://oasishub.co/dataset/global-tsunami-event-historical-database-ncei

Global Grid of Probabilities of Urban Expansion to 2030, v1 (2000 – 2030)

Dataset Code: urbanExpansionProbability

The Global Grid of Probabilities of Urban Expansion to 2030 presents spatially explicit probabilistic forecasts of global urban land cover change from 2000 to 2030 at a 2.5 arc-minute resolution. For each grid cell that is non-urban in 2000, a Monte-Carlo model assigned a probability of becoming urban by the year 2030.

Citation:

Seto, K., B. Güneralp, and L.R. Hutyra. 2016. Global Grid of Probabilities of Urban Expansion to 2030. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H4Z899CG. Accessed 26 April 2022.

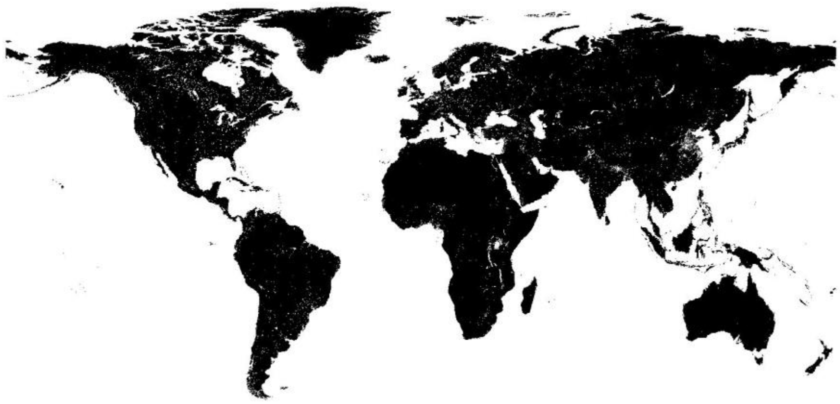
Seto, K., B. Güneralp, and L.R. Hutyra. 2012. Global Forecasts of Urban Expansion to 2030 and Direct Impacts on Biodiversity and Carbon Pools. Proceedings of the National Academy of Sciences of the United States of America (PNAS) 109 (40): 16083-16088. https://doi.org/10.1073/pnas.1211658109.

Layers:

Global Grid of Probabilities of Urban Expansion to 2030

Year/s:	Format:	Resolution:	Units:
2030	.tif	5 km	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/lulc-global-grid-prob-urban-expansion-2030



Global Urban Footprint

Dataset Code: urbanFootprint

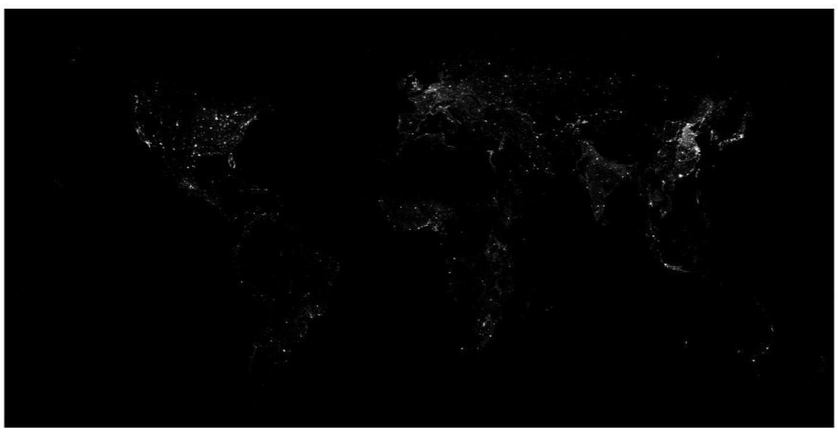
The objective of the "Global Urban Footprint" (GUF) project is the worldwide mapping of settlements with unprecedented spatial resolution of 0.4 arcsec (~12 m). A total of 180 000 TerraSAR-X and TanDEM-X scenes have been processed to create the GUF.

Citation:
Esch, T., Elsayed, S., Marconcini, M., Marmanis, D., Zeidler, J., Dech, S. (2014): Dimensioning the Degree of Urbanization – A Technical Framework for the Large-scale Characterization of Human Settlement Forms and Patterns based on Spatial Network Analysis. Submitted to Journal of Applied Geography

Layers:
Global Urban Footprint

Year/s:	Format:	Resolution:	Units:
2016	.tif	0.4 arcsec	Categorical

Source Link:
https://datacore-gn.unepgrid.ch/geonetwork//srv/eng/catalog.search#/metadata/b886eacd-8373-4ce7-973e-893078449abe



Global Urban Heat Island (UHI) Data Set, v1 (2013)

Dataset Code: urbanHeatIsland

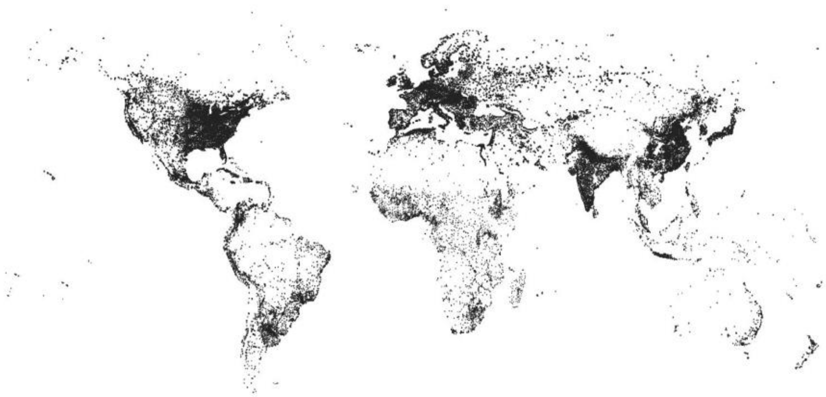
The Global Urban Heat Island (UHI) Data Set, 2013, estimates the land surface temperature within urban areas in degrees Celsius (average summer daytime maximum and average summer nighttime minimum) as well as the difference between those temperatures and the temperatures in surrounding rural areas, defined as a 10km buffer around the urban extent.

Citation:
Center for International Earth Science Information Network - CIESIN - Columbia University. 2016. Global Urban Heat Island (UHI) Data Set, 2013. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/H4H70CRF. Accessed 26 April 2022.

Layers:
Global Urban Heat Island (UHI) Data Set v1

Year/s:	Format:	Resolution:	Units:
2013	.shp	30 arc-seconds (~1km)	Numeric

Source Link:
https://sedac.ciesin.columbia.edu/data/set/sdei-global-uhi-2013



Major mineral deposits of the world

Dataset Code: usgsMining

Regional locations and general geologic setting of known deposits of major nonfuel mineral commodities. Originally compiled in five parts by diverse authors, combined here for convenience despite likely inconsistencies among the regional reports.

Citation:
Schulz, K. J., Briskey, J. A. (2005). Reviews of the Geology and Nonfuel Mineral Deposits of the World - U.S. Geological Survey Open-File Report 2005-1294. 21–22.

Layers:
Major mineral deposits of the world

Year/s:	Format:	Resolution:	Units:
2005	.shp	0.001 degree	Categorical

Source Link:
https://mrdata.usgs.gov/major-deposits/

Vegetation Health Index

Dataset Code: vegetationHealth

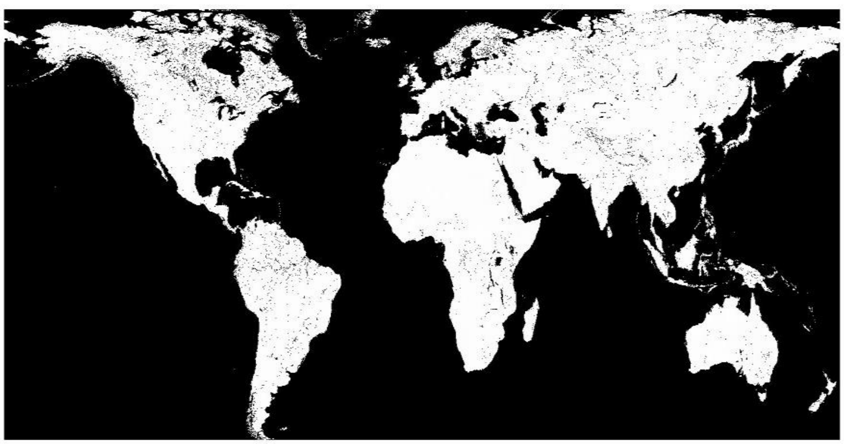
The STAR Vegetation Health Index is a product from NOAA's National Environmental Satellite, Data, and Information Service (NOAA-NESDIS) Global and Regional Vegetation Heath (VH) system estimating vegetation health, moisture condition, and thermal condition. VH products can be used as proxy data for monitoring vegetation health, drought, soil saturation, moisture and thermal conditions, fire risk, greenness of vegetation cover, vegetation fraction, leaf area index, start/end of the growing season, crop and pasture productivity, teleconnection with ENSO, desertification, mosquito-borne diseases, invasive species, ecological resources, land degradation, etc.

Citation:
NOAA STAR Center for Satellite Applications and Research. 2018. Global Vegetation Health Products. Accessed through Resource Watch, (26 April, 2022). www.resourcewatch.org.

Layers:
Vegetation Health Index

Year/s:	Format:	Resolution:	Units:
2013-2020	.tif	4 km	Numeric

Source Link:
https://resourcewatch.org/data/explore/foo024nrt-Vegetation-Health-Index_replacement_4



Water Use

Dataset Code: waterUse

Sectoral water withdrawal dataset for the period 1971-2010, which distinguishes six water use sectors, i.e., irrigation, domestic, electricity generation (cooling of thermal power plants), livestock, mining, and manufacturing.

Citation:

Z. Huang et al., "Reconstruction of global gridded monthly sectoral water withdrawals for 1971-2010 and analysis of their spatiotemporal patterns," Hydrol. Earth Syst. Sci., vol. 22, no. 4, pp. 2117–2133, 2018, doi: 10.5194/hess-22-2117-2018.

Layers:

Consumed, Withdrawn

Year/s:	Format:	Resolution:	Units:
2010-2018	.nc	0.5 arc-degree	Numeric

Source Link:
https://zenodo.org/record/1209296

Wetlands and Waterbodies

Dataset Code: wetlandsAndWaterbodies

This data set estimates large-scale wetland distributions and important wetland complexes, including areas of marsh, fen, peatland, and water (Lehner and Döll 2004). Large rivers are also included as wetlands (lotic wetlands); it is assumed that only a river with adjacent wetlands (floodplain) is wide enough to appear as a polygon on the coarse-scale source maps.

Citation:

Lehner, B. and Döll, P. 2004. "Development and validation of a global database of lakes, reservoirs and wetlands." Journal of Hydrology 296/1-4: 1-22. Accessed through Resource Watch, (26 April 2022). www.resourcewatch.org.

Layers:

Global Lakes and Wetlands Database: Lakes and Wetlands Grid (Level 3)

Year/s:	Format:	Resolution:	Units:
2004	.tif	30 arc seconds	Numeric

Source Link:
https://www.worldwildlife.org/publications/global-lakes-and-wetlands-database-lakes-and-wetlands-grid-level-3