Inter-American Development Bank
Open Integrated Environmental-Economic Modelling (OPEN-IEEM) Platform
Ecosystem Services Modelling Data Packets
EL SALVADOR

Country	**ISO code:** SLV **English:** El Salvador **Spanish:** El Salvador
Packet version	**Version:** 1.0.0 **Released:** Nov. 1, 2020
Coordinate Reference System	EPSG:5460 - Ocotepeque 1935 / El Salvador Lambert - Projected
Administrative Boundaries	**Description:** The geoBoundaries Global Database of Political Administrative Boundaries Database is an online, open license resource of boundaries (i.e., state, county) for every country in the world. **Citation:** Runfola D, Anderson A, Baier H, Crittenden M, Dowker E, Fuhrig S, et al. (2020) geoBoundaries: A global database of political administrative boundaries. PLoS ONE 15(4): e0231866. https://doi.org/10.1371/journal.pone.0231866 **Website:** https://www.geoboundaries.org
Depth to root restricting layer	**Description:** Depth to bedrock (R horizon) up to 200 cm predicted using the global compilation of soil ground observations. Accuracy assessement of the maps is availble in Hengl et at. (2017) DOI: 10.1371/journal.pone.0169748. Measurement units: mm calculated from the original in cm, 250 m spatial resolution. **Citation:** Hengl T, Mendes de Jesus J, Heuvelink GBM, Ruiperez Gonzalez M, Kilibarda M, Blagotić A, et al. (2017) SoilGrids250m: Global gridded soil information based on machine learning. PLoS ONE 12(2): e0169748. https://doi.org/10.1371/journal.pone.0169748 **Website:** https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/bfb01655-db81-4571-b6eb-3caae86c037a

Elevation	**Description**: Digital Elevation Model files at 1-arcsecond resolution (3601x3601 pixels) in a latitude/longitude projection (EPSG:4326). Measurement units: meters. Pitfilled using QGIS/SAGA Fill Sinks (Wang $ Liu) algorithm. **Citation**: Farr, T.G., Rosen, P.A., Caro, E., Crippen, R., Duren, R., Hensley, S., Kobrick, M., Paller, M., Rodriguez, E., Roth, L., Seal, D., Shaffer, S., Shimada, J., Umland, J., Werner, M., Oskin, M., Burbank, D., Alsdorf, D., 2007. The Shuttle Radar Topography Mission. Reviews of Geophysics 45. https://doi.org/10.1029/2005RG000183 **Website:** https://urs.earthdata.nasa.gov/
Reference Evapotranspiration	**Description**: The Global Aridity Index (Global-Aridity_ET0) and Global Reference Evapo-Transpiration (Global-ET0) datasets provide high-resolution (30 arc-seconds) global raster climate data for the 1970-2000 period, related to evapo-transpiration processes and rainfall deficit for potential vegetative growth, based upon implementation of a Penman Montieth Reference Evapotranspiration (ET0) equation. Provided for non-commercial use in standard GeoTiff format, at 30 arc seconds or ~ 1km at the equator. Measurement units: mm / month. Redistributed for non-commercial use with permission of the authors. **Citation:** Trabucco, A., and Zomer, R.J. 2018. Global Aridity Index and Potential Evapo-Transpiration (ET0) Climate Database v2. CGIAR Consortium for Spatial Information (CGIAR-CSI). **Website:** https://cgiarcsi.community/data/global-aridity-and-pet-database/
Land Cover Land Use – Country	**Year:** 2010 **Resolution:** 30m **Number of classes:** 30 **Citation**: Ministerio de Agricultura y Ganadería, 2010. Uso actual de suelo de la Republica de El Salvador, C.A. **Website**: https://datacatalog.worldbank.org/dataset/el-salvador-land-use-2010
Land Cover Land Use – CCI	**Description**: Global land cover maps at 300 m spatial resolution, on an annual basis from 2016 to 2018, consistent with the series of global annual LC maps from 1992 to 2015 produced by the European Space Agency (ESA) Climate Change Initiative (CCI). **Citation**: Defourny, P., Lamarche, C., Flasse, C., Kirches, G., Boettcher, M., Brockmann, C., 2019. Product User Guide and Specification. ICDR Land Cover 2016 to 2018. Copernicus Climate Change Service. **Website**: http://maps.elie.ucl.ac.be/CCI/viewer/download.php

Plant Available Water Content	**Description**: Texture maps are calculated using SAGA Soil Texture Classification tool and Plant Available Water Content (PAWC) is derived from coefficients mapped to soil texture maps following Elnesr, M., 2006. Subsurface drip irrigation system development and modeling of wetting pattern distribution (PhD Thesis). Alexandria University. tables 3-5. Sand, Silt and Clay inputs for the soil texture classification tool were obtained from SoilGrids (Hengl T, Mendes de Jesus J, Heuvelink GBM, Ruiperez Gonzalez M, Kilibarda M, Blagotić A, et al. (2017) SoilGrids250m: Global gridded soil information based on machine learning. PLoS ONE 12(2): e0169748. https://doi.org/10.1371/journal.pone.0169748). Measurement units: percentages (relative, with values from 0 to 1), 250 m spatial resolution. **Citation**: Elnesr, M., 2006. Subsurface drip irrigation system development and modeling of wetting pattern distribution (PhD Thesis). Alexandria University. **Website**: https://data.isric.org/geonetwork/srv/eng/catalog.search#/home
Annual Precipitation	**Description:** WorldClim version 2.1 climate data for 1970-2000. Released in January 2020. Annual climate data for precipitation at 10 minutes (~340 km2) resolution. Measurement units: millimeters per year, 1 km spatial resolution, 1970-2000 means. **Citation**: Fick, S.E. and R.J. Hijmans, 2017. WorldClim 2: new 1km spatial resolution climate surfaces for global land areas. International Journal of Climatology 37 (12): 4302-4315. **Website**: https://worldclim.org/data/worldclim21.html
K factor soil erodibility	**Description**: USLE K factor, that is the Soil Erodibility Factor. It takes input of soil texture classes (sand, clay, silt) and organic matter, all in range of [0.0-1.0]. Wang et al. (2012) was used to calculate using Sand, Silt, Clay data from Soilgrids (Hengl et al., 2017). Measurement units: t.ha.hr/ha.MJ.mm, 250 m spatial resolution. **Citation**: Wang, B., Zheng, F., Römkens, M.J.M., 2013. Comparison of soil erodibility factors in USLE, RUSLE2, EPIC and Dg models based on a Chinese soil erodibility database. Acta Agriculturae Scandinavica, Section B — Soil & Plant Science 63, 69–79. https://doi.org/10.1080/09064710.2012.718358 **Website**: https://data.isric.org/geonetwork/srv/eng/catalog.search#/home
R factor rainfall erosivity	**Description**: R factor for Rainfall erosivity calculated with GRASS GIS r.usleR facility from an annual precipitation raster. Measurement units: MJ.mm/ha.hr.year, 1 km spatial resolution, 1970-2000 means. **Citation**: Benavidez, R., Jackson, B., Maxwell, D., Norton, K., 2018. A review of the (Revised) Universal Soil Loss Equation ((R)USLE): with a view to increasing its global applicability and improving soil loss estimates. Hydrology and Earth System Sciences 22, 6059–6086. https://doi.org/10.5194/hess-22-6059-2018 **Website**: https://worldclim.org/data/worldclim21.html

Soil Carbon Storage	**Description**: Soil organic carbon content (fine earth fraction) in dg/kg at 6 standard depths. Predictions were derived using a digital soil mapping approach based on Quantile Random Forest, drawing on a global compilation of soil profile data and environmental layers. Measurement units: tons per ha for depth interval 0.00 m - 0.30 m, 250 m spatial resolution. **Citation**: Hengl T, Mendes de Jesus J, Heuvelink GBM, Ruiperez Gonzalez M, Kilibarda M, Blagotić A, et al. (2017) SoilGrids250m: Global gridded soil information based on machine learning. PLoS ONE 12(2): e0169748. https://doi.org/10.1371/journal.pone.0169748 **Website**: https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/713396f6-1687-11ea-a7c0-a0481ca9e724
Watersheds	**Description**: HydroBASINS is a series of polygon layers that depict watershed boundaries and sub-basin delineations at a global scale. Using the HydroSHEDS database at 15 arc-second resolution, watersheds were delineated in a consistent manner at different scales, and a hierarchical sub-basin breakdown was created following the topological concept of the Pfafstetter coding system. **Citation**: Lehner, B., Verdin, K., Jarvis, A. (2008): New global hydrography derived from spaceborne elevation data. Eos, Transactions, AGU, 89(10): 93-94. **Licensing**: This product OPEN-IEEM Ecosystem Services Modelling Data Packets incorporates data from the HydroSHEDS database which is © World Wildlife Fund, Inc. (2006-2013) and has been used herein under license. WWF has not evaluated the data as altered and incorporated within OPEN-IEEM Ecosystem Services Modelling Data Packets, and therefore gives no warranty regarding its accuracy, completeness, currency or suitability for any particular purpose. Portions of the HydroSHEDS database incorporate data which are the intellectual property rights of © USGS (2006-2008), NASA (2000-2005), ESRI (1992-1998), CIAT (2004-2006), UNEP-WCMC (1993), WWF (2004), Commonwealth of Australia (2007), and Her Royal Majesty and the British Crown and are used under license. The HydroSHEDS database and more information are available at http://www.hydrosheds.org. **Website**: https://hydrosheds.org/page/hydrobasins

Model Geographic Data Needs Checklist

Dataset	Carbon Storage	Annual Water Yield	Nutrient Delivery Ratio	Sediment Delivery Ratio
Land Cover Land Use	x	x	x	x
Depth to root restricting layer		x		
Elevation			x	x
Evapotranspiration		x		
Plant Available Water Content		x		
Annual Precipitation		x	x	
K factor				x
R factor				x
Soil Carbon Storage	x			
Watersheds and subwatersheds		x	x	x

Note: For additional data needs, visit the InVEST documentation.