

West Africa Coastal Vulnerability Mapping:
Subset of JRC Map of Accessibility

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DESCRIPTION

This data set was used as an indicator in the analysis presented in the report, "Mapping the Exposure of Socioeconomic and Natural Systems of West Africa to Coastal Climate Stressors" (de Sherbinin et al., 2014; de Sherbinin et al., 2015). The table below provides information about the indicator as it was used in the analysis, including a description of the input data (where relevant) and of the processing completed to produce the indicator.

Title:	Market Accessibility
Indicator Code:	MARK
Component:	Adaptive Capacity
Rationale:	Extensive literature shows that road networks and market accessibility play an important role in development and access to health care and other social services. Greater spatial isolation is assumed to produce higher vulnerability to climate stressors.

<p>Data Set:</p>	<p>Travel Time to Major Cities: A Global Map of Accessibility, produced by the Joint Research Centre of the European Commission, provides an gridded estimate of travel time to the nearest city of 50,000 or more people in year 2000.</p> <p>Accessibility is defined as "the travel time to a location of interest using land (road/off road) or water (navigable river, lake and ocean) based travel." It is computed using a cost-distance algorithm which computes the "cost" (in units of time) of traveling between two locations on a regular raster grid. The raster grid cells contain values which represent the cost required to travel across them, hence this raster grid is often termed a friction-surface. The friction-surface contains information on the transport network and environmental and political factors that affect travel times between locations. Transport networks can include road and rail networks, navigable rivers and shipping lanes. The locations of interest are termed targets, and in the case of this data set, the targets are cities with population of 50,000 or greater in the year 2000.</p> <p>To produce the Subset of of JRC Map of Accessibility raster, the Global Map of Accessibility was subset to the 200 km coastal zone of the ten Guinea Current countries of West Africa.</p> <p>Input data source citation: Nelson, A. 2008. Estimated travel time to the nearest city of 50,000 or more people in year 2000. Global Environment Monitoring Unit - Joint Research Centre of the European Commission, Ispra Italy. Available at http://forobs.jrc.ec.europa.eu/products/gam. Accessed 9/3/2013.</p>
<p>Units:</p>	<p>Pixel values represent minutes of travel time to nearest city with population of 50,000 or greater in the year 2000.</p>
<p>Limitations:</p>	<p>Dates of input data sources range from 1987 (e.g., navigable rivers) to 2008 (e.g., shipping layers), and the road network is based on available public domain data. The data are not to be used for characterizing the general accessibility of an area. It is a measure of access to markets. Website indicates "The assumptions made in the generation of this accessibility map can be found in the description and data sources links on the left," but no description of assumptions were found.</p>
<p>Spatial Extent:</p>	<p>The spatial extent of the Subset of JRC Map of Accessibility raster is the 200 km coastal zone of the ten Guinea Current countries of coastal West Africa: Guinea-</p>

	Bissau, Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon.
Spatial Resolution:	30 arc-second (~1 km)
Time Period:	Dates of input data sources range from 1987 (e.g., navigable rivers) to 2008 (e.g., shipping layers).
Additional Notes:	<p>Input data for the JRC global map of accessibility:</p> <p>Target locations: <i>Populated Places</i></p> <p>Frictions surface components: <i>Road network, railway network, navigable rivers, major waterbodies, shipping lanes, national borders, land cover, urban areas, elevation, and slope.</i></p> <p>For more information, visit http://forobs.jrc.ec.europa.eu/products/gam/sources.php.</p>

ACCESSING THE DATA

SEDAC URL: <http://sedac.ciesin.columbia.edu/data/collection/wacvm>.

Permanent URL: <https://doi.org/10.7927/H4W95738>.

The data are available as compressed zipfiles of GeoTIFFs or shapefiles. Downloaded files need to be uncompressed in a single folder using either WinZip (Windows file compression utility) or similar application before they can be accessed by your GIS software package. Users should expect an increase in the size of downloaded data after decompression.

The data are stored in geographic coordinates of decimal degrees based on the World Geodetic System spheroid of 1984 (WGS84).

DISCLAIMER

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consequential, or special damages arising out of the use of any data provided by CIESIN. The JRC Map of Accessibility data set is an extract of the Joint Research Centre's data product: Travel Time to Major Cities: A Global Map of Accessibility. Please see the EU Disclaimer at http://ec.europa.eu/geninfo/legal_notices_en.htm.

USE CONSTRAINTS

Users are free to use, copy, distribute, transmit, and adapt the work for commercial and non-commercial purposes, without restriction, as long as clear attribution of the source is provided.

RECOMMENDED CITATION(S)

Data set:

Nelson, A. 2018. West Africa Coastal Vulnerability Mapping: Subset of JRC Map of Accessibility. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <https://doi.org/10.7927/H4W95738>. Accessed DAY MONTH YEAR.

REFERENCES

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de Sherbinin, A, T. Chai-Onn, M. Jaiteh, V. Mara, L. Pistolesi, E. Schnarr, and S. Trzaska. 2015. Data Integration for Climate Vulnerability Mapping in West Africa. ISPRS International Journal of Geo-Information 4(4):2561-2582. <https://doi.org/10.3390/ijgi4042561>.

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