

GIS Data Source*

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February 5, 2020

1 Boundary

1. [GADM maps and data](#) provides data on boundaries (at multiple levels of administrative areas) and covers countries all over the world.
2. [Spatial Data Repository](#) by NYC Library. Several data, such as boundaries and transportations, are available.
3. [DIVA-GIS](#). As with (1). Plus relatively old climate data (1970-2000).

2 Nighttime Lights

1. [Version 4 DMSP-OLS Nighttime Lights Time Series](#) by NOAA.

3 Population

1. [WorldPop](#) provides spatial demographic datasets. In addition to population data, other demographic data are also provided ([WorldPop Data](#)).¹

4 Climate

1. [GPCP Combined Precipitation Data Set](#). Data are provided in NetCDF format. The NC data file should be converted to GeoTiff format to further investigation. However, the memory of computer must be 30GB at least.
2. [University of Delaware Air Temperature & Precipitation](#), similar to above.

*The blue letters are hyperlinks to the web.

¹<https://data.humdata.org/dataset/worldpop-indonesia-population> provides the same population data.

3. [CHIRPS-2.0](#) provides precipitation data. The data are provided in NetCDF, GeoTiff, and Esri BIL formats. To download the data, FTP software is needed.²³⁴ About CHIRPS is [here](#). We should read [Funk et al. \(2015\)](#). We can also use [FEWS Data Downloads](#) to download data.

5 Forest

1. [Global Forest Change](#) by Hansen/UMD/Google/USGS/NASA.
2. [Land-related GIS data of Indonesia](#) by Center for International Forestry Research (CIFOR).

6 Tokyo

7 General Papers

1. [Donaldson, Dave, and Adam Storeygard. 2016.](#) "The View from Above: Applications of Satellite Data in Economics." *Journal of Economic Perspectives*, 30 (4): 171-98.
2. [Banzhaf, Spencer, Lala Ma, and Christopher Timmins. 2019.](#) "Environmental Justice: The Economics of Race, Place, and Pollution." *Journal of Economic Perspectives*, 33 (1): 185-208.

8 General Resources

1. [GIS Analysis for Applied Economists](#) by Melissa Dell
2. [Modern Geospatial Data Analysis with R](#) by Zev Ross
3. [R: Mapping and Geospatial](#) by Duke University Libraries
—More on the package ggplot2 & tmap [Link 1](#), [Link 2](#), and [Link 3](#)
4. [Picturing a Pixel](#) by NASA
5. [SRTM 90m DEM Digital Elevation Database](#)
6. [OpenStreetMap Wiki](#)
7. We may be able to download FTP data from RStudio. [How To Download Files From An FTP Server In RStudio with RCurl](#) (jump to YouTube)

²FileZilla is one of the useful FTP softwares.

³http://chg-wiki.geog.ucsb.edu/wiki/CHIRPS_FAQ

⁴<http://lixuworld.blogspot.com/2017/09/data-chirps-global-gridded-rainfall-v20.html>