

Interactive Mapping of Geospatial Global Datasets

Bridgette Kegelmann and Dr. Jing Gao

Department of Geography
University of Delaware

Intro

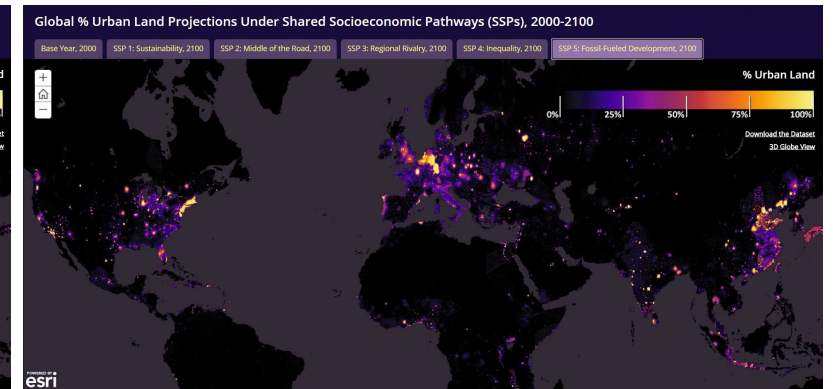
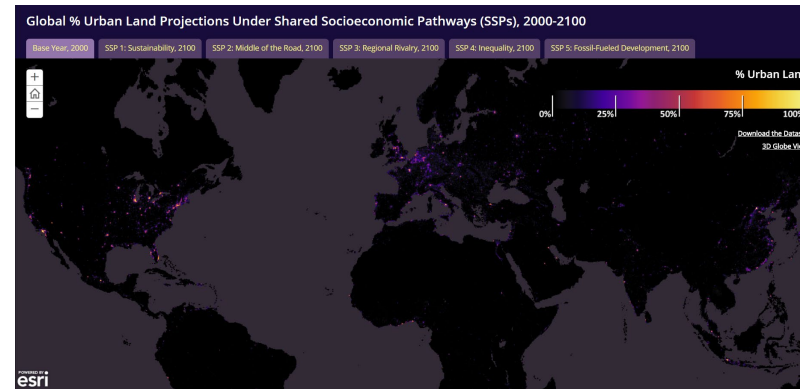
It is increasingly useful in today's online world to have tools that make geospatial data easily accessible and understandable to the scientific community and public. Displaying data in an interactive medium that can be easily analyzed widely facilitates decision support from scientists, regardless of their familiarity with geospatial datasets.

Objective

Research online mapping functions and platforms to find how to implement an online interactive map that can be used to appropriately analyze and visualize a series of global raster datasets.

Current Results

Base Year, 2000 (*left*) compared to Shared Socioeconomic Pathway (SSP) 5, 2100 (*right*)



Above, the 1st and 6th tabs are displayed for comparison. While using the web map, the user can zoom to any location on the globe and switch between all 6 tabs to easily compare and analyze the change in urban land coverage over any area they chose. Moving forward there will be a link within this web map that will connect you to a separate web page made using ESRI's ArcGIS Web AppBuilder. This alternative map will provide an option to toggle between different symbology of any chosen SSP for further analysis.

Methods

This project focuses on designing and implementing an interactive map to visualize and analyze a series of global geospatial raster datasets which show 5 different ways the percentage of urban land could change from the years 2000 to 2100. To do this, we thought it best to display 6 global maps which include the 5 projections for 2100 and the base values recorded in 2000 for comparison. After researching available platforms, ESRI's Map Series Builder was used to host the 6 maps because it has the following functions:

- Global raster datasets are supported.
- Allowed manually created symbology designed to display a percentage-based dataset in a visually intuitive way.
- Maps can be easily toggled between while retaining the geographic index of where the user has chosen to analyze.

Resources & Associations

Gao, J., & O'Neill, B.C. (2020). Mapping global urban land for the 21st century with data-driven simulations and Shared Socioeconomic Pathways. *Nature Communications*. DOI: [10.1038/s41467-020-15788-7](https://doi.org/10.1038/s41467-020-15788-7)

Gao, Jing, 2020, "Global 1/8-Degree Urban Land Fraction Grids, SSP-Consistent Projections and Base Year, v1 (2000 - 2100)", <https://doi.org/10.7910/DVN/ZHMI1L>, Harvard Dataverse, V1