The Global Prevalence (rates of confirmed cases per 100,000 people) and Mortality (deaths of confirmed coronavirus disease (COVID-19) cases) statistics and visualizations are essential in understanding the extent of the pandemic's impact on the world's population. The COVID-19 mapper measures the following variables:

- **Prevalence (rates of confirmed cases per 100,000 people)**
- **Prevalence 7-day Moving Average**
- **Mortality (deaths of confirmed coronavirus disease cases per 100,000 people)**
- **Mortality 7-Day Moving Average**

These statistics are calculated using daily cases from the Johns Hopkins University Coronavirus Resource Center and adjusted with 2020 population data from SEDAC’s GPWv4 and UNWPP-Adjusted Population Totals.

The SEDAC COVID-19 Mapper uses population data from SEDAC’s Gridded Population of the World (GPW) version 4, Revision 11 collection. Most notably, the mapper relies on 80 raster datasets from the GPW v 4.11’s Basic Demographic Characteristics dataset to disaggregate population by age and sex. Users can perform spatial queries for a region’s population and demographic makeup. As a result of GPW’s continuous raster format, population and demographic queries can cut across national and subnational borders. COVID-19 poses pronounced age-associated mortality risk and disproportionate mortality risk for men (Williamson et al.). As such, population demographics are critical information in understanding local COVID-19 mortality risk.

The COVID-19 mapper presents data on environmental and geographic factors that may be associated with increased transmission and mortality. This includes local air pollution, degree of urbanization, and altitude. Long-term exposure to air pollution is an environmental health hazard linked to increased COVID-19 mortality (Pertroni et al., Vasquez-Apestegui et al.). Population density influences transmission dynamics (Pequeno et al.) and should inform a locally appropriate public health response. Spatial data on urban form was sourced from the Global Human Settlement - “Degree of Urbanization” model Grid r2019a v2 (Florczyk, et al.). Population density is calculated using the Global Human Settlement - Population Grid (GHS-Pop). Higher altitudes have shown to offer some protection from COVID-19 transmission (Segovia-Juarez, et al.).

This web app draws on data from SEDAC, John Hopkins University & Medicine’s Coronavirus Resource Center, Joint Research Centre of the European Commission, and NASA’s Land, Atmosphere Near real-time Capability for EOS (LANCE).