Global Night-time Light Trends

Today, we have greater and better access to data from all over the world, and we can retrieve it within seconds. Global data can illuminate problems that would be hard to see from our local standpoints, and connect us to people continents away. My project, a visualization of nighttime light around the globe, aims to use data to this end, addressing a pertinent and awful issue that is rarely brought to light. Even the women who are affected by such violence do not feel able to open conversation about their situation: in fact, the UN reports that over 60 percent of women who experience violence do not seek any sort of help. This is further exacerbated by the prevalence of violence inflicted by intimate partners, as it is often much harder to reach out behind closed doors. My app thus reaches out for these women, bringing digital visibility to their hidden struggle.

过去夜间灯光数据被用来反映战争，贫困，城市区域

I wrote a program in Python (make-json.py) to extract the relevant pieces of information from the UN Nation's report, convert the countries in latitude/longitude coordinates, and build the json file (mysearch.json). I wrote in HTML (index.html) to create a WebGL globe that visualized my data, and also included relevant files from WebGL's public repo in mine. I developed on GitHub and Heroku using the command line.

We used a true color composites and 3D approaches to visualize the time series data of global nighttime light. The process is divided into three main steps. The first step is to call and calculate the nighttime light time series data in the GEE platform and perform true color composites. To facilitate visualization, the resulting image is reduced in resolution and exported as a jpg file, then the sphere is created using Three.js and the resulting image is used as a surface to cover the sphere, and finally the rotation and interaction of the sphere is adjusted using OrbitControls.js. The interface was refined and uploaded on github for release. The data comes from

The change in lighting at night can reflect the economic prosperity/recession and poverty of a region. In this project we can see that developed countries such as the US and UK appear relative green, Eastern Europe is blue, and economies that used to grow fast, such as China, is red. 城市的发展过程Our earth like a jeweled treasure incessantly spinning in an endless cosmos.

The live version is out here: <https://adamzhou3.github.io/NighttimeLightTrend/>. All code can be found at: <https://github.com/AdamZhou3/NighttimeLightTrend>