Friend in High Places

**A.**

Our project is a visualization of the Twitter and corresponding location data from an astronaut, Samantha Cristoforetti, in the International Space Station (ISS). We primarily used two datasets. The first dataset we have used is world-50.json which was used to plot the world map. One dataset is orbiting data of ISS from the “International Space Apps Challenge”. The dataset provides us very detailed information about the location of the ISS. Variables we used from this dataset are:

* “orbitId” (unique identification number for each orbit),
* within the “orbit” object, there are three variables,
  + “coordinates” (coordinates of each point of the orbit, including longitude and latitude data),
  + “timestamps" (timestamp in UTC format of each orbit point), and
  + “altitudes” which we did not use.

The last dataset we get is from Samantha’s Twitter account. We download this data using Twitter API into one Json file. There are several variables used in this Json file, including

* “id” (unique identification number for each Twitt),
* “timestamp” (timestamp in UTC format of each Twitter post),
* “html” (the text of the whole post, including HTML tags for each links)
* “coordinates” (longitude and latitude data for where each twitt was sent.

**B.**

According to every coordinate data point we have, we plot trace point on the map. Users can choose either showing a day trace point or a single orbit trace point. The timestamp variable is used to map each trace point corresponding to different day and time, which allows users to select a specific date and time and see where the ISS is at. Twitter data is presented in two ways with the map. First we plot where twitts are sent on the map with Twitter-color circles; and second, when users click on those circles, the whole Twitter post will show up on the interface. Our map is using Kavrayskiy VII projection, which gives us a more accurate world map projection in 2D comparing to Equirectangular and Mercator projections.

**C.**

Adding hashtag word cloud to the map.