Data Visualization Project - Asteroids

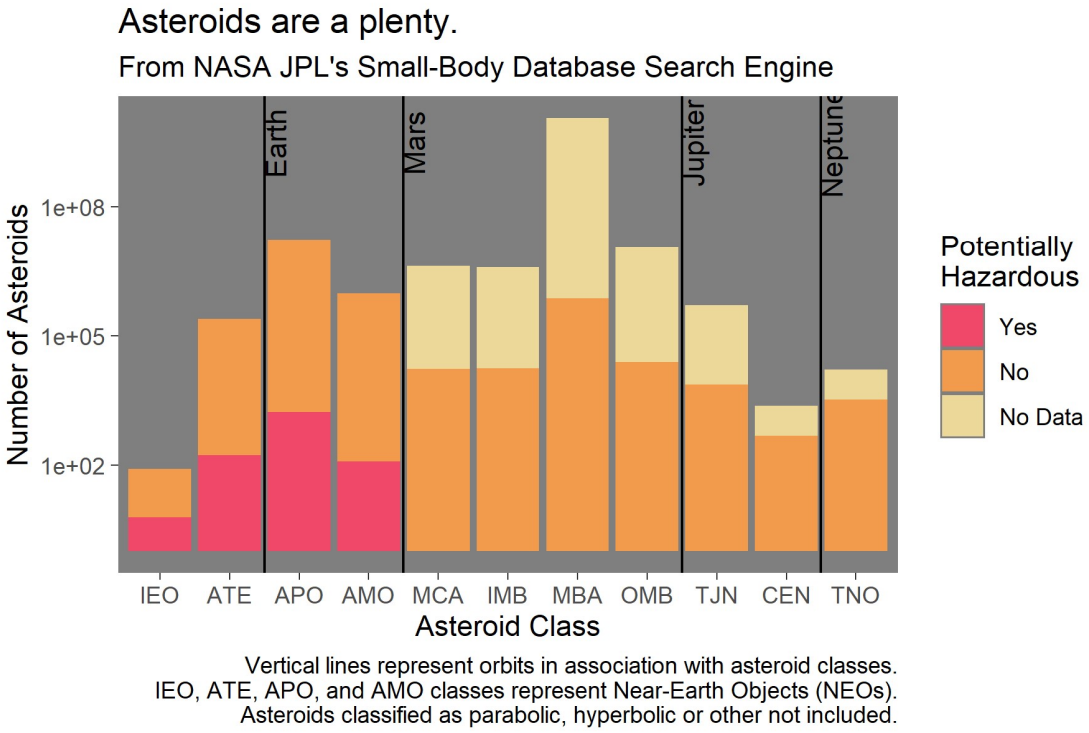
Douglas Fedorczyk

Introduction

The three graphics contained herein are a testament to the shear number of asteroids contained within our solar system. While the dataset I found came from kaggle, the data itself comes from NASA JPL's Small-Body Database Search Engine. There were many variables contained in this dataset but the ones that were of particular interest to me were the asteroid classes, the size and inclination of their orbits, and whether they are potentially hazardous objects, i.e. objects that could collide with Earth.

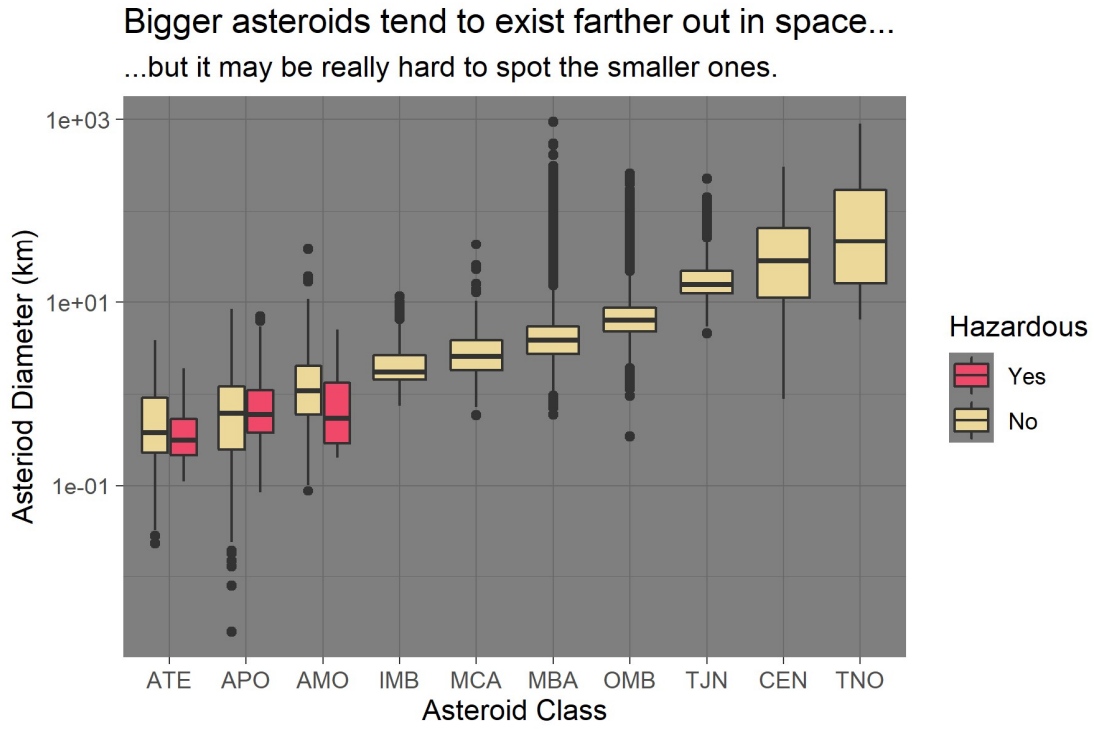
1. There are a lot of asteroids out there.

I never really grasped just how many asteroids there were until I started working with this dataset. In the graphic below, there are each of the asteroid classes along with the number of asteroids that reside within that class; which are mostly defined based on their distance from the sun.



2. Larger asteroids tend to exist farther out in the solar system.

The next graphic depicts the number of asteroids with known diameters (~16%). It appears that larger asteroids exist farther out in our solar system, but we also have less data the farther out we get. And it may be that it's harder to spot the smaller ones.

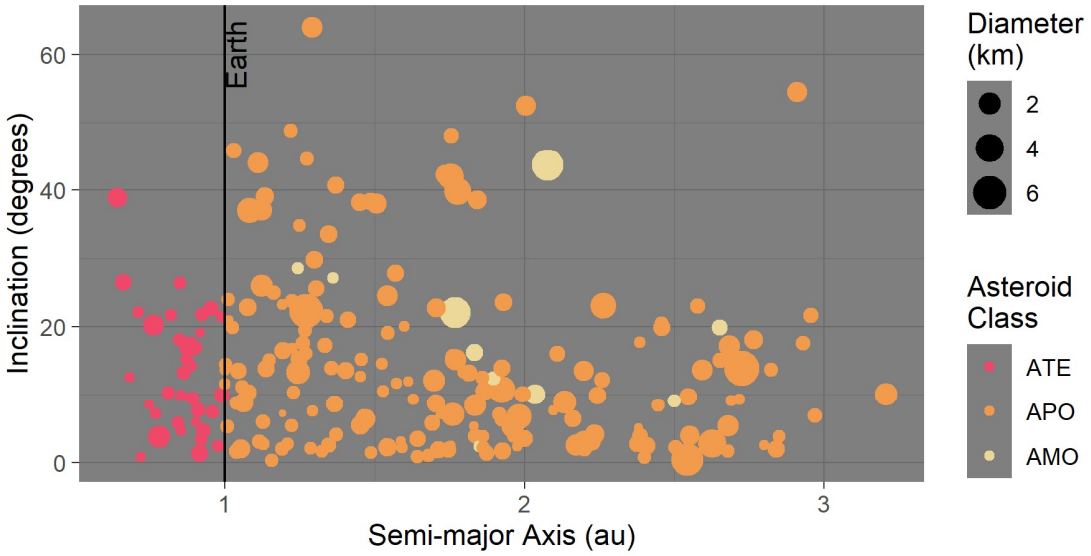


3. Potentially Hazardous Asteroids are not that big, relatively speaking, but are still pretty big.

What I found most interesting about this graphic was that the potentially hazardous asteroids (PHAs) are still pretty big. It made me curious about how big the asteroid that caused the demise of the dinosaurs was, which is estimated to be about 10 km in diameter.

Smaller asteroids are still pretty big though.

Potentially Hazardous Asteroids



Vertical line is an approximation of Earth's orbit.
Inclination relative to ecliptic plane.
Asteroid classes differ based on semi-major axis and perihelion.