

HW1: Early Visualization Critique

A visualization example that I came across while looking through some possible ones is “NASA’s Eyes on Asteroids”. This visualization is an interactive tool created by NASA, that allows users to explore the asteroid belt and see real-time positions of asteroids in our solar system. The interface is a 3D model of the solar system that can show real-time data on asteroid positions and trajectories. Fig. 1 shows a static image of the interactive tool that NASA provides in its website.

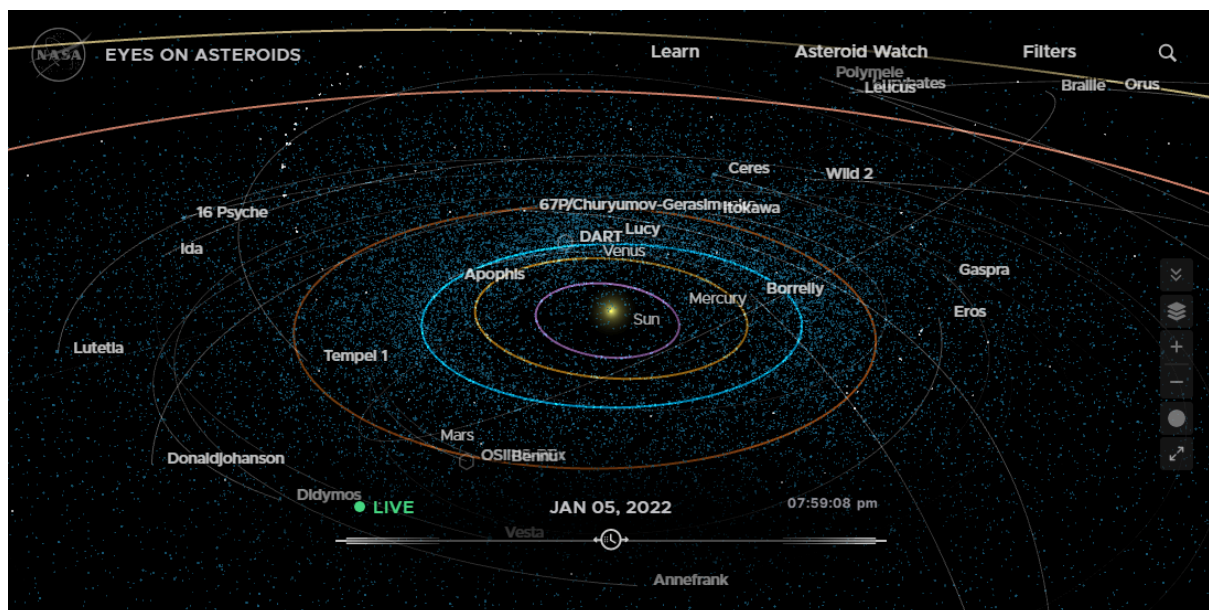


Fig. 1: NASA’s Eyes on Asteroids

Image source: <https://eyes.nasa.gov/apps/asteroids/#/asteroids>

Message and Insights

- The primary aim of this visualization is to inform and educate the public about asteroids in our solar system, particularly those that could potentially be hazardous.
- By offering real-time data, the visualization highlights the dynamic nature of space and the importance of monitoring celestial bodies.
- Furthermore, from this visualization, we can learn about the vast number of asteroids orbiting within our solar system and their varied trajectories.
- Not only can we learn the names of the different asteroids but also a pool of other information like when it was discovered, its size, velocity and orbit period, to name some.
- Upon clicking a certain asteroid, one gets a zoomed-in view of the asteroid. This makes it very interesting as we also get to see what the asteroid looks like.

- The real-time aspect of the visualization provides a sense of the constant movement and changing nature of these celestial bodies, emphasizing the need for continuous monitoring for planetary defense purposes.

Critique of the Visualization

Pros:

- The 3D model is visually stunning and engaging, which increases interest and understanding among users.
- The ability to interact with the model, such as zooming in and out, enhances the user experience and aids in understanding the scale and movement of asteroids.
- Providing up-to-date information increases the relevance and educational value of the visualization.
- One can view the position of these asteroids live and far back in time up to the 1990s as well. It also predicts the location of the asteroids in the future using the information available regarding its current orbital path.
- They defined different terms such as the units of measure such as AU so that the end users understand them.

Cons:

- Users unfamiliar with astronomy or 3D models might find the interface initially overwhelming.
- The bar which allows the user to view the position of these asteroids at different timelines only works when the slider is dragged to different positions across the bar. Clicking on different locations of the bar doesn't automatically move the slider to that position.
- Without proper context or guidance, users might misinterpret the data, such as overestimating the risk of certain asteroids.
- Furthermore the different celestial objects such as planets, asteroids and comets are shown by different symbols. However, there is no legend that denotes what these symbols stand for. Users who have no knowledge regarding the names of the different celestial objects could have a hard time differentiating between them.