### Hashtags: #asteroid, #asteroidimagery

Contact: [[email protected]](http://www.cloudflare.com/email-protection)

### Tags: Citizen Science, Platform, Imagery

**Challenge Description**

Design an open-source platform for sharing crowd-sourced asteroid imagery—including observations that have already have been logged, as well as newly observed Near Earth Objects. Consider integrating tools to make it easy for amateur astronomers around the world to contribute both primary and follow-up imagery. Imagery is most accessible to the general public when calibrated with astrometric and photometric reductions, then incorporated into an authoritative data set. Having access to this data set enables global citizens to help identify and characterize potentially dangerous Near Earth Objects.

**Background**

In June 2013, NASA announced a grand challenge to “find all asteroid threats to human populations and know what to do about them.” This Grand Challenge expands the role of individual inventors, tinkerers, citizen scientists, developers and technologists. Asteroids pose the threat of impact, while presenting an opportunity to expand our knowledge of this natural phenomenon. The Grand Challenge seeks to shine a spotlight on asteroids, and garner global participation in providing impact prevention solutions.

Many of the millions of yet undiscovered Near Earth Objects require space-based hardware or large professional scopes to locate. Once identified, amateurs can perform useful follow-up observations on estimated composition, albedo, rotation, and other characteristics of these objects. No mechanism currently exists for amateurs to easily and effectively share imagery in a way that contributes to the collective picture of the threat of asteroids from space.

The Minor Planet Center currently acts as the central clearinghouse for Asteroid observations taken as data from professional and amateur telescopes, and space-based telescopes such as NASA’s WISE. This astrometric data allows the calculation of orbits for the asteroids so both professionals and amateurs may conduct follow-up observations.

Once published on the Minor Planet Center’s website, amateurs can then follow-up to make their own observations and create imagery. You may consider streamlining the transfer of data from the Minor Planet Center and your application, facilitating a seamless experience for users.

Amateur Astronomers currently use free web tools, to share and discuss their images taken of celestial objects from around the globe; but no tool exists to encourage a high-level of use. Also, if not properly calibrated, the scientific value of this imagery is limited. Crowdsourced, properly calibrated, follow up observation imagery of Near Earth Asteroids that are shared and stored in the same location could accelerate the scientific understanding of asteroid threats to our planet.

**Details**

Be open-source with documentation for others to build on:

* All source code and documentation must be posted onto GitHub and or Hackpad
* Any open source tools or APIs used to enable your solution must be cited
* Specify what data sets/sources are being used if the library is pulling in existing sources of imagery

**Sample resources**

* [http://www.minorplanetcenter.net](http://www.minorplanetcenter.net/)
* <http://www.flickr.com/groups/astrometry/>
* [http://www.astrometrica.at](http://www.astrometrica.at/)
* <http://www.nasa.gov/mission_pages/asteroids/initiative/index.html>
* <http://minorplanetcenter.net/physical_db>
* <https://b612foundation.org/news/faq-on-the-chelyabinsk-asteroid-impact/>
* <http://www.flickr.com/services/api/>