**PDC2021**

**Vienna, Austria**

**☐ Key International and Political Developments**

**⛝** **Advancements and Progress in NEO Discovery**

**☐** **NEO Characterization Results**

**☐ Deflection and Disruption Models & Testing**

**☐ Mission & Campaign Designs**

**☐ Impact Consequences**

**☐ Disaster Response**

**☐ Decision to Act**

**☐ Public Education & Communication**

**CATCHing Near-Earth Objects in Archival Survey Data**

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***Keywords:*** *Surveys, Asteroids, Comets*

##### **ABSTRACT**

Near-Earth object (NEO) surveys have made remarkable strides over the past decades. Many improvements are based on hardware and technique, but also software and data processing methods. The latter may be retroactively applied to archival data, thereby enhancing the scientific return of those data sets with new results, whether they be photometry, astrometry, or even significant non-detections. Furthermore, NEO discovery has commonly been tracklet-based, requiring multiple observations of an object within a short time period. This approach can miss some single night or otherwise temporally sparse detections of individual NEOs. Thus, archival data from sky surveys is continuously reviewed for pre-discovery/precovery observations of new objects.

We present CATCH (Comet Asteroid Telescopic Catalog Hub), an online service to aid researchers in discovering small bodies in archival sky survey data. CATCH is expected to be the main interface to NEAT (Near-Earth Asteroid Tracking survey), ATLAS (Asteroid Terrestrial-impact Last Alert System), Catalina Sky Survey, and potentially other data sets being archived at the Planetary Data System's Small Bodies Node. In addition, CATCH has the ability to search any internet-served survey data. At the present time, CATCH includes the SkyMapper survey (Data Release 2), and searches for PanSTARRS (Panoramic Survey Telescope And Rapid Response System; Data Release 2) is in development. We show CATCH's capabilities through its front-end website and backend public API, and discuss some of the technologies behind its development, and potential avenues of future work, such as automatic searches for new NEO discoveries, and incorporation of the Minor Planet Center's observation database.

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