

ZTF Year 2 Survey Strategy RFI

ZTF Solar System SWG

1. Scientific objectives that could not be met during Year 1

Twilight Survey

We already discovered a record-breaking asteroid 2019 AQ3 only one month into the survey. However, since the Twilight Survey time was allotted to mid-November to mid-February, the near-Sun region will only be monitored for these three months. A year-round Twilight Survey will be essential for a thorough survey of the near-Sun region, as well as a continuous monitoring of incoming near-Earth asteroids (NEAs) arriving from the direction of the Sun.

Asteroid Rotation Survey

Since the Ecliptic plane and the Galactic plane are very close to each in Jan and early Feb, it is a bit challenging to select good field to carry out asteroid rotation period survey.

2. Requested observing strategy

Twilight Survey

Throughout Year 2, reserve the 12 to 18-deg twilight time for Twilight Survey every 3 nights.

Asteroid Rotation Survey

In Year 2, we propose to use mid-February to mid-March in 2020 or October/November in 2019 as our survey period

3. Plans and resources for data analysis, follow-up, publication, etc.

- We will use ZStreak and ZMODE to identify NEAs in the Twilight Survey data. ZStreak and ZMODE is operated by Caltech/IPAC as part of the ZTF operation.
- The SWG has built dedicated pipeline for the Asteroid Rotation Survey.
- The GROWTH network will be used to follow up new discoveries.
- We expect a summary paper at the end of Year 3 for both surveys. Discoveries of exceptional significance (for example, Earth impactors, bright Sun-grazing comets, rare fast rotators) will be published in dedicated papers in a timely manner.