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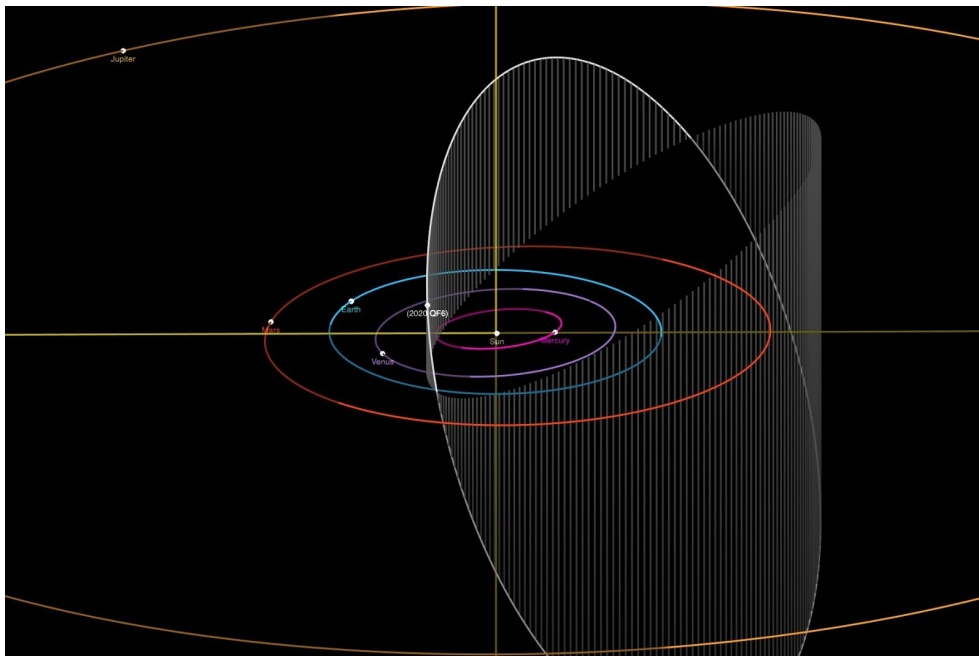
Newsletter #138 September 2nd 2020

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News from working groups

Solar System: “For this month, we have discovered a record 9 NEOs in one month, the highest number of NEOs discovered by NEOZTF in one month. Among the 9 discovered NEOs in 2020 August, two are noteworthy. [2020 QG](#) is the closest fly-by object, passing only ~3,000 km above the Earth's surface on 2020 August 16, already discussed last time. [2020 QF6](#) is a large, ~1 km potentially hazardous object with Earth orbit crossing distance of 0.03 au found in the morning Twilight survey on 2020 August 22. A rare find because the number of 1 km NEOs left to be discovered is ~100-200, and even fewer ~1 km potentially hazardous objects. The object has an inclination of 73 degrees, aphelion of ~4.5 au, and noted by Emily Kramer (JPL) to have a Jupiter Tisserand parameter of 2.23 which is similar to the Tisserand parameter of Jupiter Family Comet members. Follow-up with deep imaging to search for activity is recommended. An orbit diagram showing the high inclination orbit is shown below.”



AGNs and TDEs: “New TDE candidates are getting Swift observations (eg, ZTF20abefeab). Plus two papers (by Sara and Erica) are nearing completion and will be submitted to the publication board in the next week (see Twiki for details).”

Machine Learning: “Classification of SEDM spectra to identify SN Ia was recently implemented successfully (Christoffer Fremling). Work on sub-classifying other classes is ongoing (Yashvi Sharma). Two new Zooniverse projects have been proposed and are in different stages of development and deployment. One is on Supernovae (Christoffer++) and the other on stellar variability (Michael Coughlin, Adam Miller, ...).”

Multimessenger: “Great news regarding short GRB follow up. We performed follow-up of short GRB 200826A with ZTF, covering a sky area of 185.5 square degrees and reaching a depth of $r \sim 22.3$ with 300s exposures (Sagues Carracedo et al., [GCN #28293](#)). On the second night of observations, we discovered ZTF20abwysq/AT2020scz, the rapidly-fading optical afterglow of GRB 200826A (Ahumada et al., [GCN #28295](#)), whose coordinates were consistent with the refined IPN localization. ZTF20abwysq was confirmed to be the afterglow by X-ray and radio observations ([GCN #28300](#), [GCN #28302](#)). This is the first solid detection of a short GRB afterglow with ZTF.

In a week rich of fast transient discoveries, a new cosmological afterglow candidate was discovered in the ZTF data (Andreoni et al., [GCN #28305](#)). The transient, ZTF20abtxwfx/AT2020sev, was found during the science validation of the new ZTF-ReST (Realtime Searching and Triggering) project designed for kilonova discovery, independent of GRB or GW triggers. ZTF20abtxwfx might be associated with short GRB 200817A, as it lies in the 93rd percentile of the Fermi/GBM probability skymap.”

Physics of supernovae and relativistic explosions: “At the last two telecons, we discussed three major topics. 1) Jakob gave an update on the performance of current photometry pipelines (Alert pipeline, ZUDS, and FM Force Photometry Pipeline). For bright and faint stars, the pipelines clearly differ. The level of discrepancy is correlated with the amount of background light. These discrepancies are on the milli-mag level (i.e., a few percent). Though small, understanding and resolving them is vital for the Ia Cosmology group. At the moment, it is not clear what is causing these differences and which pipeline is the “correct” one. If you are interested in that subject, contact Jakob or tune in to the SNIa telecons. 2) Sheng presented his paper draft on the iPTF14hls-like SN 2020faa. Unlike 14hls, Sheng and his team have collected multi-band data and a series of spectra from the start. The similarities between 2020faa and 14hls are mesmerising: slow evolution, similar luminosity, colours, spectra, and photospheric velocities. Assaf Horesh has submitted a VLA DDT to get deep radio observations. Further follow-up observations are encouraged. 3) Kishalay presented a paper draft on the late-time evolution of SN 2019ehk in M100. The SN showed flash features. Later on, it also showed strong He lines, as well as O and Ca, typical of Type IIb SNe. It turned nebular early and showed strong lines of Ca / high ratio of Ca to O, typical of Ca-rich SN. These properties are puzzling and suggest the existence of a sub-class of “Ca-rich” SNe produced by low-mass / ultra-stripped core-collapse supernovae.”

The papers corner:

Please keep us updated about your submitted/published papers, they will be advertised here.

Please send Joy Painter, the Astronomy Librarian at Caltech, links to papers as soon as they are published. They will be kept track of [here](#).

Reminders:

- PublicAlerts: There is a [link](#) to the alerts archive on the [website](#)!
- Please help us keep track of all the available softwares! A preliminary list is available on the [twiki](#). Let us know if you are building a software which you think could benefit (or be relevant to) a large portion of the collaboration.
- **ZTF general slack channel**: Please join through this [link](#)!
- If you want to get access to the **ZTF data** via the IRSA interface, please request data access to the communication coordinators: ztf.communication.coordinators@gmail.com
- **Archive GUI** now ready! The interactive image search, filtering and visualization tool is now ready ().
- The **ZTF Twitter account** is now active! <https://twitter.com/ztfsurvey> Re-tweet @ztfsurvey!
- To use the **url shortener**(e.g. during telecons, talks, in emails), navigate to <http://zwicky.tf/shorten> (username: ztf password:16chips) and type in the URL you want shortened.
- The **Wiki page** is active! Check it out at <http://zwicky.tf/wiki>. To request access, please email us at ZTF.communication.coordinators@gmail.com

“Our ancestors worshipped the Sun, and they were not that foolish. It makes sense to revere the Sun and the stars, for we are their children.” - Carl Sagan

Have a good and productive week!

Erik and Igor