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Newsletter #111, January 15th 2020

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If the newsletter does not look good in your email, check the pdf [here!](#)

New communication coordinator!:

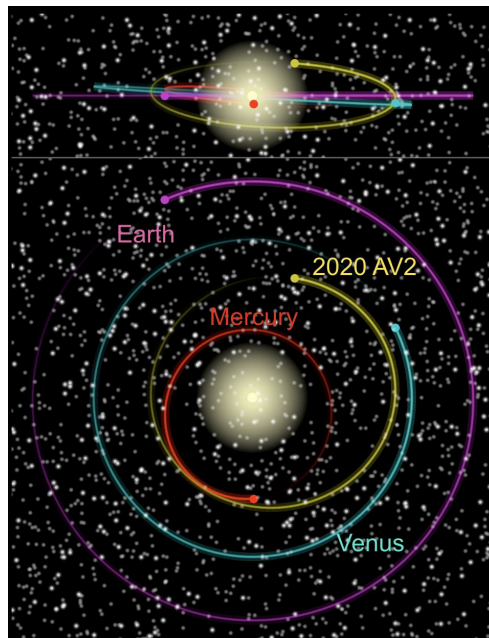
Starting this week and year, Maayane Soumagnac is replaced by Erik Kool as ZTF communication coordinator. Maayane started the newsletter together with Thomas Kupfer a whopping 110 editions ago. Not coincidentally, she is also now with maternity leave, but not before submitting her latest paper on Type II SNe (see paper corner). Thanks Maayane and congratulations for your beautiful twins!

News from the front: engineering reports (Reed Riddle)

The results of the ROS betting pool are in! We had a lot of nights with either breaks for weather, ToO observations, or both, plus a lot of slewing around the sky, so ROS never had the chance to go over 1100 observations during the contest. The maximum number of successful observations was 1058 on the night of January 4 (UT), and Thomas Kupfer was the closest with a guess of 1049. **Congratulations Thomas!**

News from working groups

Solar System: “ZTF has discovered the first-known asteroid that is located entirely within the orbit of Venus, see the figure below. It was discovered in the ZTF Twilight survey that has been operating in partnership between Caltech and National Central University. The new asteroid also has the shortest orbital period of all known asteroids, only ~150 days, and has a large size of 2-4 km”



Machine Learning: “We are starting to adapt the real bogus classifier to zuds. If you see specific types of good objects with bad scores, or vice versa, send us examples.”

AGN and TDEs:

”Our TDE population paper is now submitted to ApJ and was well-received at the AAS meeting last week. In particular Suvi gave a splendid plenary talk, including some fun Game of Thrones moments. We are now resuming regular operations (ie, finding more TDEs, CLAGN, and recoiling SMBHS) and are working to obtain late-time host galaxy spectra of our TDEs.”

Cosmology with SNe Ia: “ZUDS has been ongoing for the past week distributing alerts via Kafka. The ZUDS pipeline is up and running. Its been used to extract light curves for transients in the ZUDS fields from 2019, using the 2018 data as references. We have been iterating with consumers on the alert schema and we have more or less reached convergence. Starting with tonight's data, alerts will have one of two schemas, depending on whether they were issued [from a stack](#) or [a single epoch](#) difference image. Please email Danny Goldstein with any questions.”

Multimessenger:

GW detections: “Three gravitational wave events of interest were recently detected by LIGO/Virgo and were followed up with ZTF, Gattini-IR and other GROWTH telescopes. S200105ae is an interesting NS-BH merger, S200115j is a ‘mass gap’ candidate, and S200114f is an ‘unmodeled’ burst. If S200114f is astrophysical, its origin could be extragalactic as well as Galactic (unfortunately, Betelgeuse is still bright in the sky!). ZTF produced candidates for these events that were promptly reported via TNS and GCN circulars. Further follow-up is on-going.”

Neutrino triggers: “We got two high-energy neutrinos from IceCube this week, IC200107A and IC200209A. For the first one, no ZTF candidates were found, but we are still following up on the second.”

Physics of supernovae and relativistic explosions:

“The holidays were very generous to us. First, ZTF20aaelulu/SN2020oi, a Type Ic supernova, was detected in M100 (distance ~21 Mpc) within days after the explosion (Förster et al. 2020, TNS Report 58241). A concert of observations was triggered including spectropolarimetry (Yi Yang, WIS), Swift and radio observations with AMI and VLA (Ho et al. 2020, AstroNote, 2020-8; Horesh et al. 2020, AstroNote, 2020-10, Sfaradi et al. 2020 AstroNote, 2020-11). [Note from Don: SEDM attempted to acquire a spectrum of the SN in M100, but astrometry failures due to the large size of the galaxy prevented an accurate acquisition. The SEDM team is working to implement a method for acquiring targets in large galaxies.]

Our second season gem is ZTF19adcecwu/SN2019yvq. It is a rare example of a Type Ia SN with a UV-bright bump before the main emission. Peter Nugent pointed out that the spectra look similar to a double-detonation explosion. SN2020oi and SN2019yvq caught the attention of several SN groups around the globe.“

The papers corner:

- A paper about SNe IIn discovered with ZTF by Soumagnac et al. was submitted to ApJ (just a few hours before delivering twins!): [“Early Ultra-Violet observations of type IIn supernovae constrain the asphericity of their circumstellar material”](#)
- Van Velzen et al. from the AGNs and TDEs group submitted and posted on Arxiv their paper on a large sample of TDEs from ZTF: [“Seventeen Tidal Disruption Events from the First Half of ZTF Survey Observations: Entering a New Era of Population Studies”](#)

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 keeping 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://zwickify.tf/shorten> (username: ztf password:16chips) and type in the URL you want shortened.
- The **Wiki page** is active! Check it out at <http://zwickify.tf/wiki>. To request access, please email us at ZTF.communication.coordinators@gmail.com

“And now we welcome the new year. Full of things that have never been.” Rainer Maria Rilke

Have a great and productive year!

Igor and Erik