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Newsletter #46, September 7th 2018

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If the newsletter does not look good in your email, check the pdf here!

News from the front (engineering and DQA)

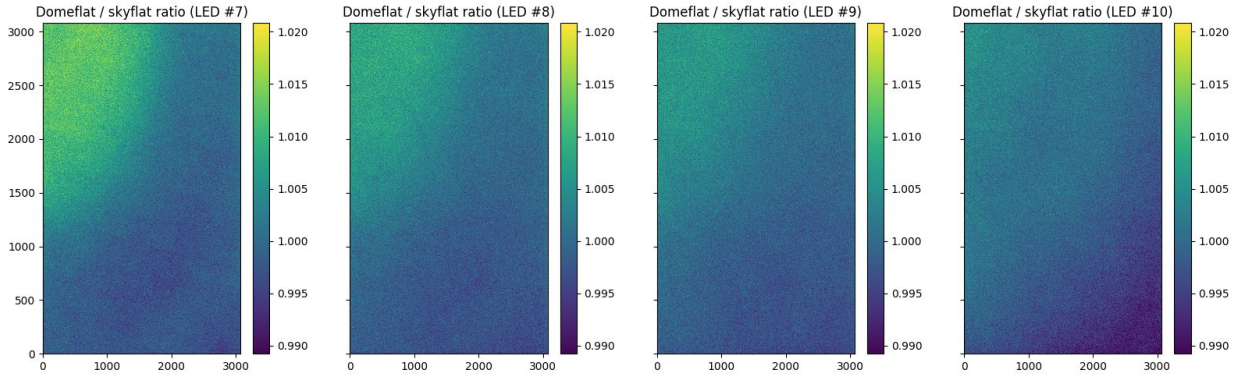
The continuous drift in DEC encoder home position from night to night was traced by the Palomar team to a poorly designed shaft coupling which was intolerant of inevitable misalignments. The drift has been eliminated by careful adjustment but a new design will be implemented to remove this vulnerability.

Analysis of videos of the filter exchange after speeding up from 80 to 60 sec revealed a few ways we can further reduce the exchange time so a second campaign is planned a few weeks from now.

Efforts to improve DIQ are resuming after absences of several key players.

Work is beginning to address systematic pointing errors, with goal of better understanding whether the instrument is moving relative to the telescope more than predicted by flexure models.

Work to equalize the domeflat illuminator LEDs is ongoing. Preliminary tests have been made fitting for the combination of LED intensities that minimize the difference (summed squared error) between domeflats and skyflats. For now, the test have focused on the r filter (LEDs number 7 to 10). The CCD-wide circular structures (also present in the starflats) show a strong wavelength dependency and are more evident for shorter wavelengths. The corresponding LEDs (mostly 7 and 8) are, as a consequence, disfavored by the fit. As an example, the image presents the ratio between monochromatic domeflats with respect to the skyflats for RC 01. The intensity of the circular blobs fades as the LED wavelength increases.



Nightly summary of public alerts:

Thank you to Richard Walters, we now have a link on the public website (https://www.ztf.caltech.edu, bottom right) giving a summary of the public alerts and sky-coverage for the recent night. One can examine other nights by entering a night-date in UT.

Updated Matchfiles:

Matchfile regeneration is done. There are ~10.8K more cases than before (July 12 run). Partnership only matchfiles are available on ztf-depot

IMPORTANT: We (still) need your help for the ZTF FAQs page! (and would love to remove this item from the newsletter)

During several weeks, we have listed the questions that people across the collaboration would like to have in the FAQs page. Now it is time to add answers. Please help us fill the voids (and elaborate on the answers already there).

News from working groups

Machine learning: "The ZTF-ML team is investigating RB cross validation, specifically trying to understand why cross validation performance is decreasing while test set performance is increasing. Until we thoroughly understand this problem, we are holding off on deploying new classifiers. We will discuss our investigation of this issue on Thursday's ZTF-ML meeting.

The PASP paper on machine learning activities at ZTF has been submitted"

SNe and relativistic explosions: "The Supernovae and Relativistic Explosions group are as usual searching for interesting transients in the ZTF alert stream. One object that is currently subject of a lot of discussion is ZTF18abkmbpy, which is mysteriously red, faint and fast-evolving; clever ideas welcome. One of our co-coordinators, Steve Schulze, has also been hard at work coordinating a proposal for a ZTF session at next year's EWASS; fingers crossed it will get approved!"

AGNs and TDEs: "The ZTFbh SWG will be setting up a new telecon time for the Fall 2018 semester (TBD for next week). We are continuing scanning, ranking of TDE and CLAGN candidates, triggering follow-up observations, and will be preparing follow-up observing proposals over the next month. We are getting good quality SEDm spectra down to 19.5 mag! Our first paper on ZTF TDE NedStark (van Velzen et al.) has passed pub board review, and has been submitted to ApJ and will appear on the arXiv next week."

Solar System: "As the ecliptic is rising, we start to detect NEO more frequently. Currently (as of Thursday) we have 12 NEOs waiting for confirmation (out of ~50 objects found by telescopes worldwide). As expected, ZTF dominates the NEO detection that comes within a couple lunar distances from the Earth. Among those that are now being well-tracked (and formal designations should soon be given), we have one at 2.0 LD, one at 5.8 LD, and one at 12 LD.

The small space debris mentioned in last week's newsletter was detected by ZTF again! Although this isn't something that we would normally dig into, folks are quite interested in it because its small size and

unknown origin. Here is a discussion by astrodynamicist Bill Gray, plus an interactive plot of the orbit: https://www.projectpluto.com/pluto/mpecs/ztf00v9.htm“

Reminders:

- Public Alerts: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://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

“Cheers to a new year and another chance for us to get it right" (Oprah Winfrey)
Shana Tova

Have a great and productive week!
Thomas and Maayane