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Newsletter #150 December 16th 2020

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**[LAST CHANCE: Try your luck with the ROS observations betting pool \(by December 18th\)!](#)**

We are coming into the longest nights of the year, when ROS has the chance to observe the maximum number of targets it can do in the course of one night. The max that we can do theoretically is easy to calculate, as ROS takes about 40s to observe a field adjacent to the previous one. The system doesn't always observe adjacent fields though, and there are filter changes, weather delays, and longer observations that whittle away the possible number of completed observations in a night. And, we will likely have plenty of nights where we only get a little bit of observing in due to the weather.

For the second year, **a betting pool is now open for everyone to guess at how ROS observing will work during the winter.** There will be two competition categories this year to guess at the performance of ROS between December 10 and January 7 (dates in UT):

- Maximum number of completed observations by ROS in a single night
- Minimum number of observations completed by ROS when it opened the dome and took at least one observation

The first item is straightforward, guess the most science observations in one night (hint: ROS completed 975 science observations in a night near the end of November). The second is a bigger challenge, as it will really depend on weather allowing ROS to open and observe a little but then shut the system down...it could be anything from 1 to a few hundred. Note that 0 is not an option, we will have nights we are completely closed so picking 0 would make this too easy.

These are for observations that ROS completes successfully, not for data processed through IPAC (as IPAC includes calibrations), and the people with the closest guess (above or below) to the two categories will win. **Send your guesses to Reed** ([riddle@caltech.edu](mailto:riddle@caltech.edu)) **by December 18th**; he will announce the winner after the holiday season (and he will not be participating in the pool to keep it fair). The winner will receive **bragging rights** for their ability to anticipate how much data ROS can take in...Thomas Kupfer came within 9 of the maximum observations last year, see if you can do better!

**Zwicky Chemical Factory (Adam Miller):**

The ZTF citizen science project “**Zwicky Chemical Factory**” has just now gone live! Help us classify supernovae so we can understand how elements are created in the Universe.

Template matching algorithms can narrow down the list of explosion types, but they struggle to identify an absolute best match and this is where we need your help. In this project you will be presented supernova spectra along with five potential matches, and we ask that you identify the best match.

With this information we can better understand how elements are created in the Universe and how stars end their lives.

Learn more, and get involved at

<https://www.zooniverse.org/projects/adamamiller/zwicky-chemical-factory>.

### **News from Fritz (Ari Crellin-Quick):**

This week we have completed major upgrades to site performance, front-end data filtering (both on the scanning page and source list page), plotting, error handling, streamlining of data access control, new functionality for requesting group admission, expanded API features, and improved testing, among many others.

### **News from working groups**

#### **Cosmology with SNe Ia:**

“The SWG is working on an archival search for lensed SN candidate using alert and forced photometry from all of ZTF-I. We are currently refining selection criteria and aim to compare with simulations for a revised analysis of the lensed SN rate in the future. Results from this study will inform the real-time lensed SN search filter for ZTF-II”

#### **Multimessenger:**

“On December 9 we got one more high-energy neutrino, which we followed up, but did not yield any candidates.

Overall, 2020 has been quite busy: We received 31 high-energy neutrino alerts from IceCube; of these, 13 (42%) permitted follow-up. Only one of the non-follow-ups was caused by bad weather, the rest was discarded due to proximity to the sun or not meeting our trigger criteria. Overall, the 2020 campaign resulted in 17 GCN circulars distributed by us and 1 coincident TDE (paper in preparation).”

#### **Physics of supernovae and relativistic explosions:**

“The infant-SN group caught two <1-day old SNe last week. ZTF20acvjlev and ZTF20acwgxhk were detected by an AMPEL filter that looks for infant SN in nearby galaxies and autonomously triggers SEDm. ZTF20acvjlev was too faint for an automatic trigger. But not ZTF20acwgxhk. SEDm observed the field ~30 min after the discovery. This might be the fastest response to a SN and the SN with the earliest spectrum. Unfortunately, both SNe did not show flash-features. Thanks to rapid UVOT observations, UV data were obtained before the peak of the SN crossed the UV filters. These data sets are scarce and extremely valuable for progenitor modelling. Stay tuned to hear more about the modelling results.”

### **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](mailto: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](mailto:ZTF.communication.coordinators@gmail.com)

*“A good vacation is over when you begin to yearn for your work.”*

*- Morris Fishbein*

Have a good and productive week, and happy holidays!

Erik and Igor