2018B Target of Opportunity Protocols

J. Elias – July 25, 2018 – Final

1. Introduction

This memo describes the process for triggering targets of opportunity, as well as the procedures for resolving conflicts. Aspects of time use and accounting are discussed.

Although this policy is intended to be comprehensive, there are undoubtedly loopholes that could be abused. Observers are requested to act in a civilized manner.

This document is a supplement to the primary SOAR Target of Opportunity Policy on our website:

http://www.ctio.noao.edu/soar/sites/default/files/TOOPOLIC-3.pdf

2. Approved Proposals

The following proposals have been approved through one partner or another:

Gravitation Wave Follow-up – 6 interrupts, up to 2 hours each; multiple proposals

L. Chomiuk, MSU, early supernovae – 5 interrupts, up to 2 hours each

G. Terreran, NOAO 208, early supernovae – 3 interrupts, up to 2 hours each

R. Foley, NOAO 315, early supernovae – 7 interrupts, up to 2 hours each, maximum 12 hours total

N. Moskovitz, NOAO 042, NEO close approach – 1 interrupt, up to 2.5 hours

J. Camargo, Brazil 006, solar system occultations – 2 interrupts, up to 2 hours each

Further details on the gravitational wave follow-up will be described in a supplementary document; this document should be used as reference in triggering observations.

3. Trigger Procedures

All of the programs allow for some delay in performing the observations, however it is reasonably likely that events will be triggered during the day or even early evening for observation that same night. The procedure to trigger an event is as follows:

- Send an e-mail that identifies the program and includes target coordinates, start time and expected duration to:
  soarops@ctio.noao.edu, soarscistaff@ctio.noao.edu
  The "start of the night" can be specified; this is counted from the end of twilight regardless of when the telescope is ready for observation.
  For GW events, there may be more than one target, in which case more than one set of coordinates will be supplied. All observations must fit within the 2 hour window.
- For same-day observations, it is recommended that you also contact the SOAR operators directly.
  - The control room phone number is +56 51 2205 500. Unfortunately we do not have voice mail.

- If you have access to a Polycom, the IP address is 139.229.10.68
- Contact the operator via Skype (soar_pachon)
- If you don't get a response, contact the SOAR director: +56 9 8723 9766 (cell phone)
- Although other means of communication are listed on the website, the operators do not routinely monitor them, and they should not be used for the initial contact.

If you trigger an observation before 2 PM local time, it is possible to adjust the instrument set-up. However, in all cases the scheduled observer's set-up requirements have priority. This may mean that you have to make do with a different detector on the Goodman Spectrograph (blue instead of red, for example), or a different grating or imaging filter selection (if the observer is using all available positions).

If you trigger an observation later in the day, set-up modifications are not possible. We will attempt to help you get calibrations.

If you trigger an observation well in advance, and then wish to cancel, you can do so without penalty before 2 PM local time on the day of the planned observation. You cannot then change your mind for that night (i.e., re-issue the alert). It is permissible to cancel due to a bad weather forecast. Instead of having the PI wait until the last minute to trigger, we would rather be notified early, and then have a cancellation. This helps us be prepared.

The PI is responsible for providing a trained observer to carry out the observations. For the proposals listed above, all of the PI's are trained, so no additional preparation is required. *This is different from the procedure on the Blanco Telescope!* You can always ask the scheduled observer to carry out the observation, but they are not obligated to do so, and may not do as good a job as an experienced PI.

Please see the final section for policy for handling down time.

Special early warning for GW events – candidate objects for SOAR need to be identified, typically using DECam on Blanco (though this isn't the only way). If the GW collaborations decide to search for a candidate object after a GW event, they have been asked to notify SOAR that the search will be started; the same e-mail addresses as above should be used. *This does not establish priority for the actual observation, and it does not mean that an actual candidate or candidates will be identified for observation.* It does allow the staff to be prepared for a possible observation. Actual observations are triggered by an e-mail with coordinates.

4. Resolution of Conflicts

The process for resolution of conflicts described below applies to semester 2018B and may evolve for subsequent semesters.

Three of the proposals (Chomiuk, Terreran and Foley) have the potential to trigger on the same target, and there is also a small chance that unrelated proposals will trigger for the same night. SOAR policy only allows one ToO interrupt per night, so resolution of conflicts is the same for both cases:

1. GW events always have priority, no matter when they happen. Both GW collaborations will trigger independently, and whoever triggers first (as determined by the e-mail) will carry out the observations, including subsequent nights for that event.
2. For all other conflicts, if the trigger occurs after 2 PM, whoever triggers first has priority
3. For triggers received before 2 PM, priority will be resolved according to the following priority list, which is based on (a) past history, including recent events and (b) NOAO TAC priority. If

there is a conflict, the program that “wins”, whether case 2 or case 3, moves to the bottom of the list (except GW events, which are always at the top).

Priority list:

GW events (always at top)

Moskovitz

Chomiuk

Camargo

Terreran

Foley

5. Compensation Time

Under the SOAR ToO policy, if a target of opportunity from one partner interrupts a night from another partner, that partner is entitled to compensation. (Not the individual observer.) Although at times we have tried to compensate individual observers, there are too many potential interrupts this coming semester, and in the past the individual compensation hasn’t always worked out anyhow.

Compensation time to partners will be taken during the next available scheduling process – so interrupts in 2018B that happen before early December will be compensated in 2019A and those that occur later in the semester will be compensated in 2019B.

6. Down Time and Related

The telescope is made available to the ToO observer at the specified time, and the desired observations must fit within a 2.5 hour window, including time lost to weather and technical problems. The ToO observer can use up to 2.5 hours even if the required observation was expected to use less time. All of the time interval between the specified ToO start and the time the ToO observer returns the telescope to the scheduled observer is counted against the ToO. This time interval can be zero if the weather is bad enough or there is a major failure, however the rest of the time compensation formula applies and the ToO alert is counted against the observer's quota.

The ToO observer can request additional time from the scheduled observer, who is free to refuse. Additional time used for the ToO is then counted against the ToO allocation and for partner compensation.

Conversely, the scheduled observer can request an adjustment to the start time of the ToO; the ToO observer is free to refuse. Examples might be an observer who needs another 15 minutes to finish a target, will finish a target early, or needs time for twilight flats. The adjusted start time is then used for calculating time used.

A ToO observer who has remaining alerts but has used all the allocated time, cannot issue more alerts.