

Partnership Target of Opportunity (ToO) observations on Keck

Updated August 2018, Original July 1, 2016: approved by SSC

Target of Opportunity (ToO) proposals are directed at objects with unpredictable appearance dates for which a short, timely observation (up to one hour) may be of great value. This Partnership ToO program is not intended for observations that can be anticipated in advance (e.g. Cadence observations).

We anticipate a 2 year trial period for this Partnership ToO policy, with a review after the first year. Updates may be needed when the Keck1 deployable tertiary becomes available.

1. Caltech, NASA, UC or UH researchers can propose to their respective TACs for cross-institutional ToO ("Partnership ToO") observations on Keck 1 and/or Keck 2. TACs should award Partnership ToOs only for highly ranked programs.
2. Each TAC will judge their respective community's proposals. Each TAC can allocate up to six triggers for Partnership ToO observations per semester. Each trigger is up to one hour of time. Each TAC will submit a list of approved Partnership ToOs as well as their full proposals to WMKO as part of the routine reporting of successful proposals.
3. WMKO will develop a web interface for managing ToO implementation, including listing approved programs, accounting for time used and remaining, reporting ToO exempted nights, etc. This will be the primary conduit for ToO PIs to initiate Partnership ToOs.
4. The ToO PI is responsible for contacting the classically scheduled PI ("Observing PI") as soon as possible. For a given night's observing, the first ToO PI to trigger an interrupt is the one that gets to observe (a.k.a. first come, first served). The WMKO web interface will be the sole source for managing the triggers. In cases where instruments not already scheduled are needed for the ToO, the interrupting PI must also contact the OA to coordinate instrument setup. The OA may also need to contact an SA for support.
5. Any ToO program that requires LGSAO must be invoked and the target coordinates submitted prior to 3:00 pm HST on the day of the observing run. ToO programs that require LGSAO can only be invoked on regularly scheduled LGSAO nights.
6. For each ToO interrupt, the maximum duration is 1 hour of elapsed time (i.e. wall clock). This includes calibration and restoring the instrument mode to its state prior to the ToO interrupt or to another state as mutually agreed with the Observing PI. In 2019A, we anticipate observers will be able to use any of the three Keck 1 instruments in beam (Hires, Osiris and one of either Mosfire or LRIS), conditional on the successful installation of the K1DM3. On Keck 2 observers will only be permitted to switch to Nires or Nirc2. ToO observations may only use instruments designated in TAC approved programs.
7. The Observing PI will make best efforts to promptly turn over the telescope to the ToO PI. The observer may briefly delay handover of the telescope in order to complete their current exposure or essential observing sequence (e.g. one AB nod pair). After that, it is expected the Observing PI will yield the telescope to the ToO PI, unless the latter agrees to wait longer. The PIs MUST inform the WMKO Observing Assistant when a Partnership ToO is invoked.
8. It is the responsibility of the ToO team to carry out the observations. The ToO team may carry out the observations themselves. If remote observing, the team is responsible for making appropriate arrangements with the Remote Observing Room, including reservations and testing in advance.

Alternatively, the ToO team may ask the Observing PI to carry out the observations, which will include an offer of co-authorship; The Observing PI is not obligated to do the observing. In instrument change cases (see 6. above), the OA and/or SA will make a best effort to support the instrument change and ToO observation but it may not be feasible in all cases.

9. Upon completion of the ToO, the ToO PI is encouraged to use the Keck ToO report found on the observer login page to submit a brief summary of the execution of the ToO.

10. No more than one ToO interrupt per night per telescope. Also, the following are exempt from ToO interrupts:

- (1) observing programs with total allocations that are a half night or less,
- (2) individual blocks of time smaller than a half night (1/3, 1/4 night blocks),
- (3) nights that already have 3 programs scheduled, and
- (4) nights with a Snapshot already scheduled (see accompanying Cadence policy).
- (5) blocks of time with non-participating institutions scheduled (Keck engineering, Subaru exchange, Swinburne, Notre Dame, and Northwestern nights)

11. Individual TACs may designate a few nights (partial or whole) as exempt from ToO interrupts. This designation must be scientifically motivated, namely that such interruptions would seriously compromise the scientific return of the entire observing time. Proposers should make any such requests to their individual TACs as part of their observing proposal. Use of these exemptions is expected to be rare occurrences. Nights should be designated as “uninterruptible” by the institution’s scheduler during the semester scheduling process, via the scheduling tool.

12. At the conclusion of each semester, WMKO will report to each partner the time used, the associated ToO programs, and the interrupted Observing PIs.

13. Time imbalances between partners arising from Partnership ToOs will be corrected through each partner’s semester time allocations and/or WMKO’s giveback science time. Since ToOs are only executed in suitably good weather, their time usage will be charged at a rate of 2x larger than normal observing time, ie 2 hrs. (Any compensation to individual PIs interrupted by ToOs will be left to the discretion of the individual institutions.)