

Designating a Priority Level for a Proposed Observation

New Queue Priority Descriptions

Adjustments have been made to the previous description to help proposers or TACs understand the appropriate priority level for a queue observation. The change is due to the high number of proposers in 2020 who planned relatively long-duration observations (~3 hours or more), consisting of a continuous sequence of exposures on one target. This type of observation often has stringent timing requirements such that it has to be carried out at one or more specific epochs that occur infrequently during the semester. An example case would be an observation of an exoplanet host star during a transit. Previously, these observations were described as requiring the highest priority level, P0. Now, we will accommodate scheduling these observations using three priority levels (P0, P1 and P2). This will increase the amount of telescope time available for this type of observation. Long-duration observations given lower priority (P3 or P4) will probably need lax requirements on the timing of their exposures to be scheduled successfully. Programs needing short duration observations (where a visit to a target is typically less than 1 hour) will continue to make use of high priority levels, where appropriate for their science cases, as described in earlier calls.

Below is a brief description of how each priority level is appropriate for different types of observations.

P0: Appropriate for extremely time sensitive long-duration observations, especially if there are few possible opportunities available during a given semester. Also appropriate for shorter observations with very stringent requirements to their epoch of observation.

P1: Appropriate for time sensitive observations, such as RV measurements at quadrature, periastron, or a small number of observations evenly spaced in orbital phase. Appropriate for long-duration observations, but with multiple possible epochs of observation during the semester (~4 or more).

P2: The lowest priority for science requiring a very high completion percentage under good conditions, such as a proposal requiring a large number of observations spread over many nights. Appropriate for long-duration observations that have quite a few possible epochs of observation during the semester (~8 or more).

P3: Appropriate for programs that can tolerate suboptimal observing conditions, are not time sensitive, and can tolerate some incompleteness.

P4: Similar to P3. Also good for proposals to observe an arbitrary subset of a large number of targets spread around the sky, such as single spectra of any of a large number of TIC stars.

Caveats and Other Advice

It may be instructive for proposers to consider the amount of NEID queue time available during the semester at each priority level. This is dependent on the queue partner, and whether the partner has a fixed amount of queue time. For GO proposers, who will be proposing to use NN-EXPLORE time, the amount of telescope time available for allocation by the TAC in a given semester of 46 NEID queue nights is (assuming 10 hours/night and including the 25% oversubscription):

Priority	% at This Level	Total Hours
P0	8	37
P1	17	78
P2	25	115
P3	25	115
P4	50	230

Note that there is a relatively small amount of time at high priority levels, thus it's a precious resource and will be in demand by many programs. Proposers are encouraged to be mindful of the scarcity of high priority time and to carefully consider whether their programs can be executed with lower priority time, or a combination of high priority and low priority time. Proposals that can make use of lower priority time would be quite useful to keep the queue scheduled at all times.