

Policy on Backup Instruments During LGS-AO Runs

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Background

The laser is not allowed to propagate into the atmosphere under conditions that would normally allow more classical observing, including NGS-AO in some circumstances. This policy describes steps that will be taken by the Observatory, and suggests steps that should be taken by the TACs and observers, in order to maximize the scientific output of the telescopes in such circumstances.

Backup Programs

Currently observers are responsible for having backup programs, usually using NGS-AO, in case LGS-AO is not possible. The TACs are responsible for enforcing the integrity of these backup programs.

Note that we do *not* propose any type of queue observing at this stage. If we were to consider queue observing we would explore whether the scheduled observer for that night would carry out the queue observing, or whether a CARA support person would be required for that work.

Backup Instruments

We propose to make sure that NIRC-2 and NIRSPEC (in its non-AO position on right Nasmyth) are available for backup observational programs. This will allow easier planning of backup programs for observers. TACs will be able to allow both NIRC-2 and NIRSPEC (non-AO) backup programs. In order to support this we will have to make sure that NIRSPEC and DEIMOS changeouts are completed in time, which will impose more constraints on daily scheduling.

We will also support this by requiring (eventually) that any SA that supports OSIRIS or NIRC-2 can also support NIRSPEC. We will investigate whether NIRC-2 is likely to be a common NGS-AO backup for OSIRIS, and if this is the case we will require all SAs that support OSIRIS to also be able to support NIRC-2.

Switching Instruments and Modes

We will allow any number of mode changes with the *same* instrument. For example, if the observer is using OSIRIS, they will be allowed to change between LGS-AO mode and NGS-AO mode at will.

However, we will allow only one switch from one instrument to another. For example, if the OSIRIS observer goes to a backup program on NIRSPEC, they will have to stick to that backup program for the remainder of their night. Note that *mode* switches, between NGS-mode and LGS-mode, are relatively cost-free, and can be done multiple times during the night.

Procedure

The Observing Assistant (OA), as the summit lead, will have the final say in whether conditions prevent LGS-AO from being used on the sky. The OAs will consult with the LGS-AO personnel and the observers. Expected scenarios that may trigger a switch to a backup, non-LGS-AO program include:

1. Thin clouds scatter the laser light over the sky, interfering with observations by other observatories on the summit.
2. Problems with the laser jeopardize the safety of the laser, personnel, or the remainder of the observing run. An example of this could be excessive burning of the dye cell.
3. Atmospheric conditions such as seeing prevent efficient use of LGS-AO. Note that in such circumstances NGS-AO may often also be problematic, encouraging a move to NIRSPEC.
4. Laser Traffic Control problems prevent observations of the LGS-AO targets. Note that typically one could move to other targets that are accessible, but one can imagine projects for which this is not feasible.