

Additional facts relevant to use of the 4-m for large science programs

The following are questions which have been received in regard to the Announcement of Opportunity for Large Science Programs providing new instrumentation for the Mayall 4-m telescope.

How much weight can be installed at the Prime Focus?

The weight of the current Prime Focus cage is about 7000 kg. This includes the cage structure, Prime Focus corrector and the Mosaic instrument, f/8 cell and secondary mirror, and f/15 flip-in secondary, along with the ancillary electrical and vacuum support systems. This does not include the inner (flip) ring structure or the supporting spider fins, both of which could be replaced as part of proposed instrumentation. The outer top ring is carefully aligned and pinned to the top of the Serrurier truss of the telescope and should not be considered removable.

Can the guider and rotator be removed from the Cassegrain cage?

Yes, if the proposed instrument would be used for significant blocks of time and the telescope can be properly balanced, which is likely. We have been doing this for blocks of NEWFIRM observing time, but this is not a process which we would want to schedule on a frequent basis.

What is the thickness of the R-C rotator and guider assemblies?

This was not included in the diagram of the 4-m telescope on the web page, but is being added. The rotator and guider are 13.5 and 9.5 inches thick, respectively (343 and 241 mm).

Is it possible to use the R-C guider without the rotator?

Yes, but a plate to interface the mounting holes on the guider to those for the rotator on the mirror cell backplate would have to be fabricated. A typical thickness for this plate would be 1 inch, making the distance from the back of the guider to the R-C focus 18.5 inches (470 mm).

The current wide-field acquisition camera is installed on the rotator, so a configuration utilizing only the guider would not have a wide-field acquisition capability built in. It is possible to accommodate the larger back focus distance by installing lenses in front of the guide probes to refocus the beam onto the detectors. We currently do this to accommodate f/15 instruments with an extended back focal distance.