
ERIS AO system and the interfaces with the telescope

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Abstract

The ERIS AO system is the first adaptive optics (AO) system designed to support an instrument delivered at Paranal (UT4) for the astronomical community, without any prior functional or performance tests with the deformable secondary mirror (DSM) or with the four Laser Guide Star (4LGS) system available in the Adaptive Optics Facility (AOF). Previous AO systems, like GALACSI and GRAAL, were tested at ESO Garching premises with the ASSIST telescope simulator, where the DSM was integrated and fully functional in the same configuration as on UT4, along with a LGS and NGS sources simulator and turbulence generator to reproduce the atmospheric conditions of Paranal. In contrast, the ERIS AO consortium faced all interfaces to the DSM and 4LGSF for the first time once installed on the UT4 telescope. This paper highlights the standard interfaces definition (a priori), issues faced (reality), and the lessons learned that can be applied to the ESO-ELT related to interfaces between the instruments and systems such as M4 or the ESO-ELT lasers. Although the ERIS AO consortium has extensive experience with the LBT telescope, the VLT system was a new challenge that required significant coordination among the consortium's multiple institutes. As telescopes and instruments grow in size and complexity, developing prototypes and coordinating multiple systems is becoming increasingly challenging. Despite this, focusing on the smallest details is also critical to ensure the success of the project.

Keywords: System Engineering, Interfaces

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