
Simulating METIS' SCAO System

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Abstract

METIS, the Mid-Infrared ELT Imager and Spectrograph, is one of the four first-generation ELT instruments scheduled to see first light in 2028. Its two main science modules are supported by an adaptive optics system featuring a pyramid sensor with 90x90 subapertures working in the H and K bands. During the PDR and FDR phases, extensive simulations were carried out to support the sensing, reconstruction, and control concept of METIS single-conjugate adaptive optics (SCAO) system.

We present details on the implementation of the COMPASS-based environment used for the simulations, the metrics used for analyzing our performance expectations, an overview of the main results, and some details on special cases like non-common path aberrations (NCPA) and water vapor seeing, as well as the low-wind effect.

Keywords: METIS, SCAO, PWFS, COMPASS, Simulation, Low, wind effect

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