Abstract

The Matera Laser Ranging Observatory (MLRO) is based on a 1.5-meter diameter Cassegrain telescope which was built in 1995. The primary mirror had a UV-enhanced coating with a very high reflectivity; however, after 20 years, it needed a new coating. Due to the particular design of the telescope, the operation has been very carefully planned by e-Geos and, in order to avoid risks, we decided to do everything on site. L3 Communication (formerly Brashear-Contraves, the builders of the telescope) directed all aspects related to the movement of the 1-ton mirror, while ZAOT (Italy) did the recoating in a vacuum chamber which was erected at the observatory. The poster illustrates all the phases of the operation.

Recoating the MLRO primary mirror

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Conclusions

The recoating of the MLRO main mirror has been a long and quite stressing task, due to the mechanical complexity of the mirror/cell assembly, to the size and weight of the various parts, and to time constraints. However, we managed to complete it successfully: our SLR data as well as photometric measurements show a clear improvement in the optical efficiency. The reflectivity of the new coating (LEFT) looks very good and we hope that it will last for a long time.