Mem. S.A.It. Vol. 74, 450

Memorie della

VST: The VLT Survey Telescope

M. Capaccioli[1,2], D. Mancini[2], and G. Sedmak[3,4]

[1] Dipartimento di Scienze Fisiche, Università di Napoli Federico II, Napoli, Italy
[2] INAF, Osservatorio Astronomico di Capodimonte, Napoli, Italy
[3] Dipartimento di Astronomia, Università di Trieste, Trieste, Italy
[4] Istituto Nazionale di Astrofisica, Roma, Italy

Abstract. The status of the VST (VLT Survey Telecope) is presented as on April 2002. The VST telescope is scheduled to move to ESO Paranal in Chile within the year 2003 and operate with the 1 square arcdegree camera OmegaaCAM within the year 2004.

Key words. surveys – telescopes

The VST project is a cooperation between the European Southern Observatory (ESO) and the Capodimonte Astronomical Observatory (OAC) of the Italian National Institute of Astrophysics (INAF) for the design and realization of a wide field alt-az telescope of 2.6-m aperture, specialized for high quality astronomical imaging, to be installed and operated at the ESO Paranal Observatory in Chile next to the VLT. This cooperation is regulated by the Memorandum of Understanding approved by ESO in 1998. ESO will fund the realization of the VST enclosure and civil work at Paranal. OAC will fund the realization of the VST telescope by funds of the Italian Ministry of Education and Research (MIUR, formerly MURST) and other public sources. The VST is a 2.6-m Ritchey-Cretien telescope with a corrected Cassegrain FOV diameter of 1.5 arcdegrees, to be matched with a 16k×16k CCD mosaic camera of 15 μm pixel size and 0.21 arcsec pixel^{-1} scale. The wide-field corrector is designed to cover the whole visual range with an encircled energy of 80% in 2 pixel. The telescope is specialized for wide-field imaging and optimized for the Paranal site. It is not a multi-purpose telescope: the target is to avoid unnecessary complexity and thus reduce operational costs and the project risk. Special attention has been paid to make the system fully integrated in the VLT framework.

The main science goals include among others wide extragalactic surveys, narrow band imaging surveys, multicolor surveys, and gravitational lensing.

The expected limiting magnitude of the VST system in V band is 25.5 AB mag per square arcsec in two bands for 30 min exposures. The data throughput with 18 bit word length will yield 0.58 Gbyte for each 16k×16k frame.

Send offprint requests to: M. Capaccioli
Correspondence to: INAF, Osservatorio Astronomico di Capodimonte, Via Moiariello 16, I-80131, Napoli, Italy

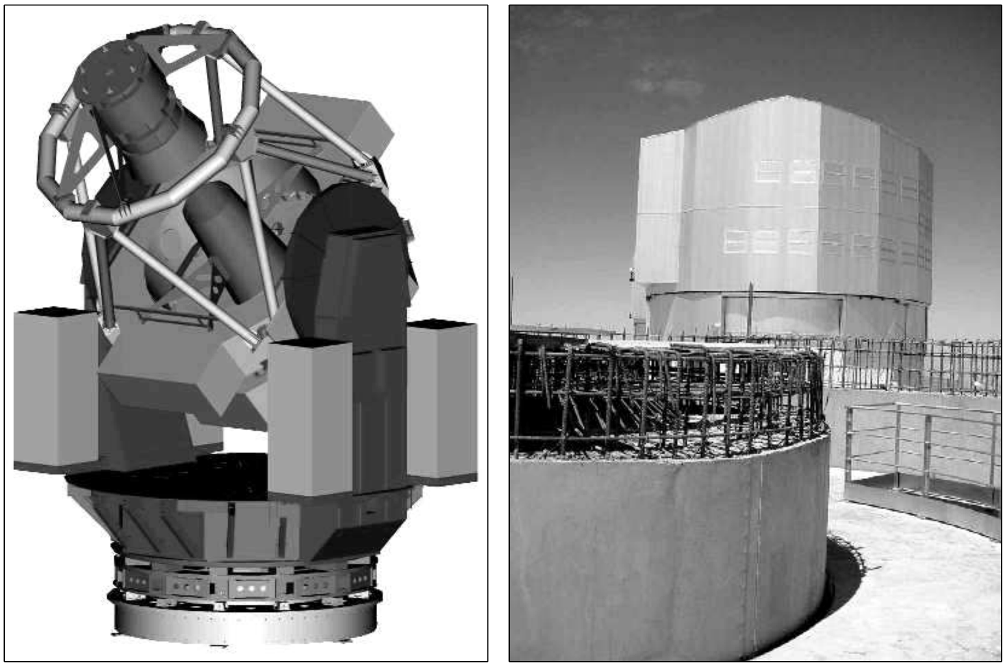

Fig. 1. The 3-D CAD rendering of the VST telescope (left panel) and the basement of the VST enclosure nearby VLT unit 3 at ESO Paranal Observatory (right panel).

The design (Mancini et al. 2000) includes two correctors, one with an ADC with less than 30 percent image degradation for zenith angles up to 70 degrees. In 1998 Carl Zeiss Jena GmbH was contracted together with LZOS, Moscow, for the realization of the VST mirrors and lenses. The mirrors and lenses have been delivered on November 2001. The ADC prisms are scheduled for delivery on December 2002. The mirros were damaged on May 2002 while being transported to Chile. A replica primary mirror is now under realization at LZOS factory, which will also repair some minor damages to the secondary mirror. The realization of the VST CCD 16k×16k mosaic camera is responsibility of the European consortium OmegaCAM, joining institutes from Germany, Italy, and The Netherlands, with the participation of and the coordination by ESO. The completion of the project is planned at the end of the year 2003 and the operation startup within the year 2004. The status of the VST project can be explored on the web pages of OAC, OmegaCAM or ESO.

References

Mancini, D., Sedmak, G., Brescia, M., Cortecchia, F., Fierro, D., Fiume Garelli, V., Marra, G., Perrotta, F., Rovedi, F., & Schipani, P. 2000, SPIE, 4004, 79