

FIRST OBSERVATIONS WITH THE 1.5 M RC TELESCOPE AT MAIDANAK OBSERVATORY

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1. Introduction

Since 1975, the Sternberg Astronomical Institute of Moscow University (SAI) has been conducting a search of Middle Asia for good astronomical sites. After investigating the meteorological conditions, temperature fluctuations and seeing quality of different sites, Maidanak Mountain (an isolated summit 150 km south of Samarkand) was chosen. This site has 2000 hours per year of clear observing conditions with a median seeing of about 0.7'' (Artamonov *et al.* 1987, Bugaenko *et al.* 1992). The construction of a 1.5m RC telescope for the Maidanak Observatory was mostly completed when it was nationalized by Uzbekistan in 1993. Tashkent Astronomical Institute is now working with SAI to form the International Maidanak Observatory and to continue with joint observations.

2. The Dome and 1.5 meter RC Telescope

The main instrument at Maidanak Observatory is a 1.5 meter RC telescope (AZT-22) which was manufactured by the optical firm LOMO (St.Peterburg). This telescope has three configurations (f/8, f/17, f/48). The f/8 configuration with two corrector lenses has a flat field about 1.5 degrees and a resolution of 0.5''. Optical testing with this configuration has shown that the telescope optics are of very high quality and are almost diffraction limited.

To preserve the best quality seeing, the dome was manufactured to have a cold floor to eliminate the problem of heating from the laboratory and control rooms. The dome can be ventilated at up to 25,000 $m^{-3}h^{-1}$. The result is that thermal equilibrium can be attained inside the dome in about

2–3 hours reducing the turbulence in the dome to that of the outside environment.

3. First Observational Results

The first CCD observations were taken in September 1995, in collaboration with an international team (P.Notni, V.Dudinov, V.Bruevich, M.Ibragimov from Germany, Ukraine, Russia, Uzbekistan) in order to test the active ventilator system for improving the dome seeing. During two weeks of observation we estimated a median seeing about $0.7''$ with a range of $0.5 - 1.2''$ which is as good as the site will provide. Exposures of the “Einstein Cross” gravitational lens system Q2237+0305 ($V=18$) were obtained with an FWHM= $0.5''$ using the Pictor 416 CCD camera. The VRI photometry during 17–23 September 1995 confirmed that the A component again became the brightest and that the colours of all components lie on the reddening line of the two-colour diagram (Vakulik *et al.* 1996).

In April 1996, a University of Pittsburgh CCD camera (TI 800×800 mounted in vacuum in a LN2 dewar) with BVRI filters was installed on the 1.5m telescope. First observations have shown high efficiency with a 5 minute exposure reaching objects of $V = 22^m$ with a $s/n=30$. Since then, we have continued to study the photometric properties of the telescope/CCD system, and in collaboration with D.Turnshek have begun a QSO and QGN monitoring program.

References

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