

V31c **Renovational Improvement of Optical Performance of Kottamia 188cm Telescope in Egypt**

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188cm Optical Telescope at Kottamia Observatory (NRIAG, Egypt) is a sister telescope of 188cm telescope at OAO, Japan. The main mirror optics has been recreated by Carl-Zeiss in 1995 with its mirror cell. Carl-Zeiss claimed that its original performance of the optics shows the good quality of image size less than 0.3 arcsec, and the Shack-Hartmann test, conducted in 1999 by Italian company, showed its performance of 0.35 arcsec. However, due to unknown reason(s), the optical quality of the Kottamia telescope has not been good with unstable image-shapes and, in some time, stellar images were separated into 3 segments. The telescope cannot be used normally about 10 years due to its optical difficulties.

Some troubles in its axial support system have been recognized after 1999. As the telescope should be recovered on its optical performance this year of the International Year of Astronomy, two Japanese astronomers were organized to inspect the telescope at Kottamia in June, 2009.

As reported, some axial support pads were measured as detached from the back-surface of the main mirror (M1). By adding plastic sheets, it showed stellar images stable but bad in 3 segments. This means clearly that the fixed points of axial support system (AFP) may affect much on bad images by pushing up M1 with larger force, which should be 90 kg normally. After height levels of the 3 AFP were measured above other axial supports, AFP heights were shifted down and we got good round stellar images after adjusting their heights several times as a temporal solution.

We discussed about future technical collaborations such as a permanent solution of AFP problem, M1 clean up with CO2 snow method, etc. We also start to discuss scientific collaborations between Japanese and Egyptian astronomers.