

New Drive and Servo-Control System of Kunming SLR Station

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A new project for Kunming SLR station from last year to now: to upgrade the drive and the servo-control system of 1.2m telescope.

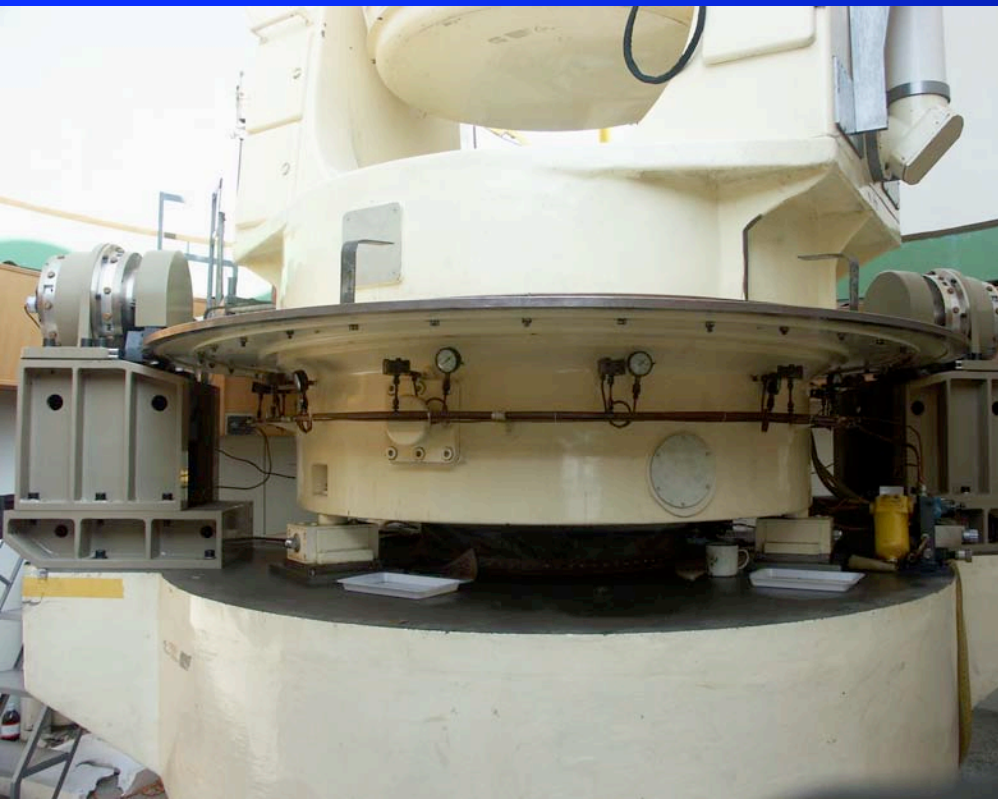
The aim of the project is to improve the LEO satellite tracking capability.

Initial results show 1.2m telescope has the tracking ability for LEO .

1. New Drive System:

Azimuth: a couple of friction drive with torque motor

Elevation: drive with torque motor directly



2. New Servo-Control System



3.New Equipments

Acquiring telescope:

field of view: 3°

aperture: $D=200\text{mm}$

focal length: $f=300\text{mm}$

$m=8.0$

Tracking telescope

field of view: 0.5°

aperture: $D=200\text{mm}$

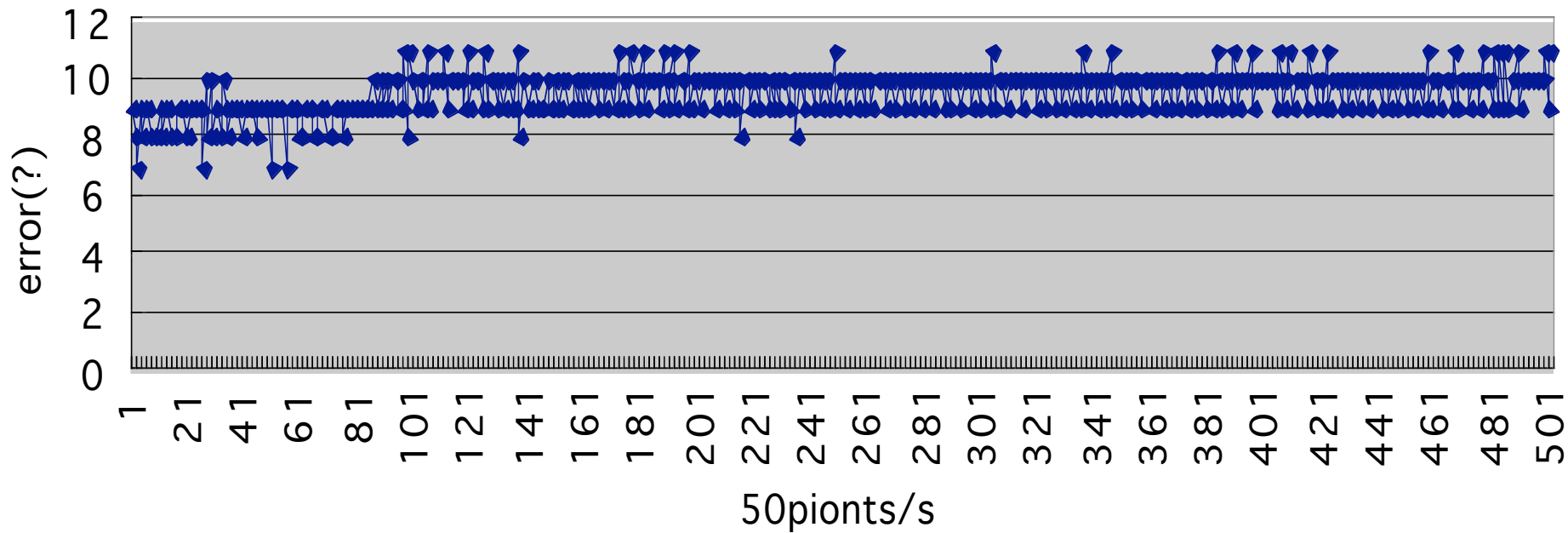
focal length: $f=800\text{mm}$

$m=8.0$

Detector :ICCD



4. Initial Results of The Project

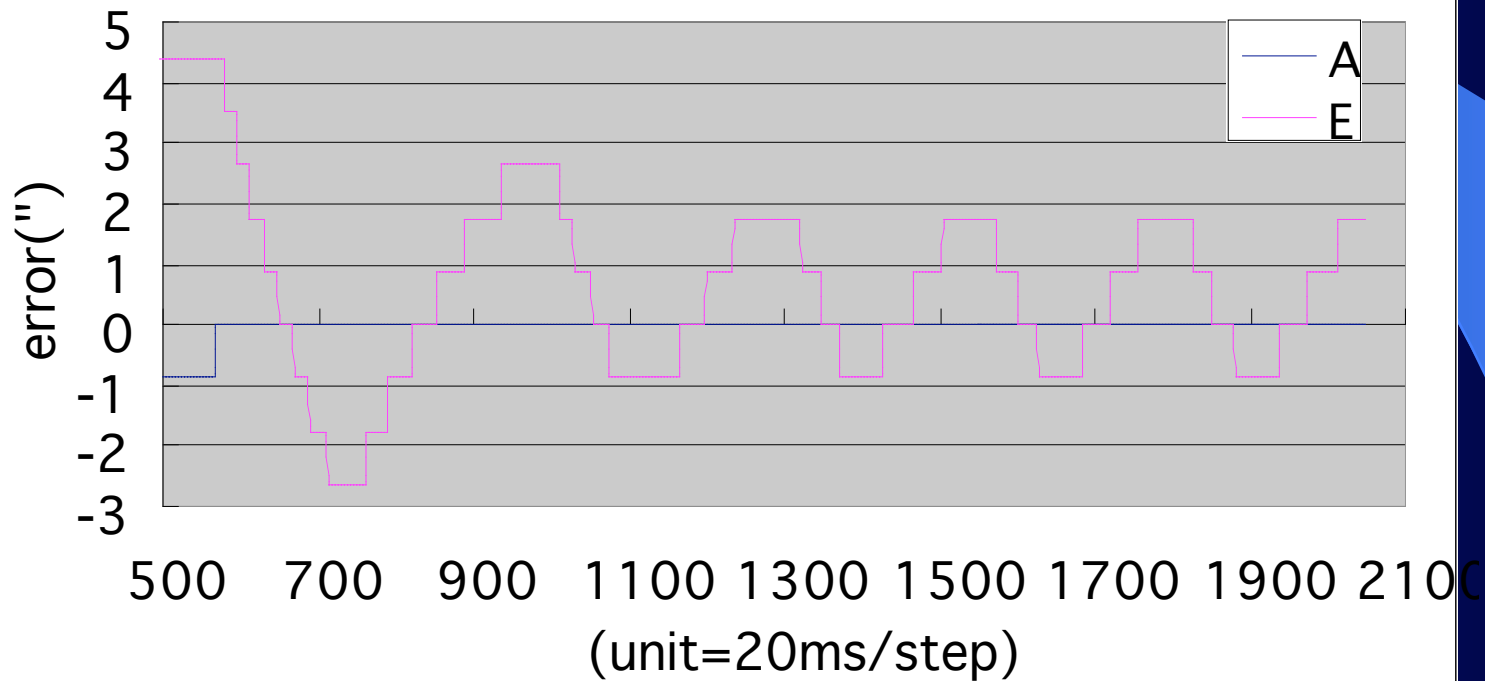


Encoder Test:

Static error $< \pm 0.5''$ Dynamic error $= \pm 1''$

1.2m Telescope static error:

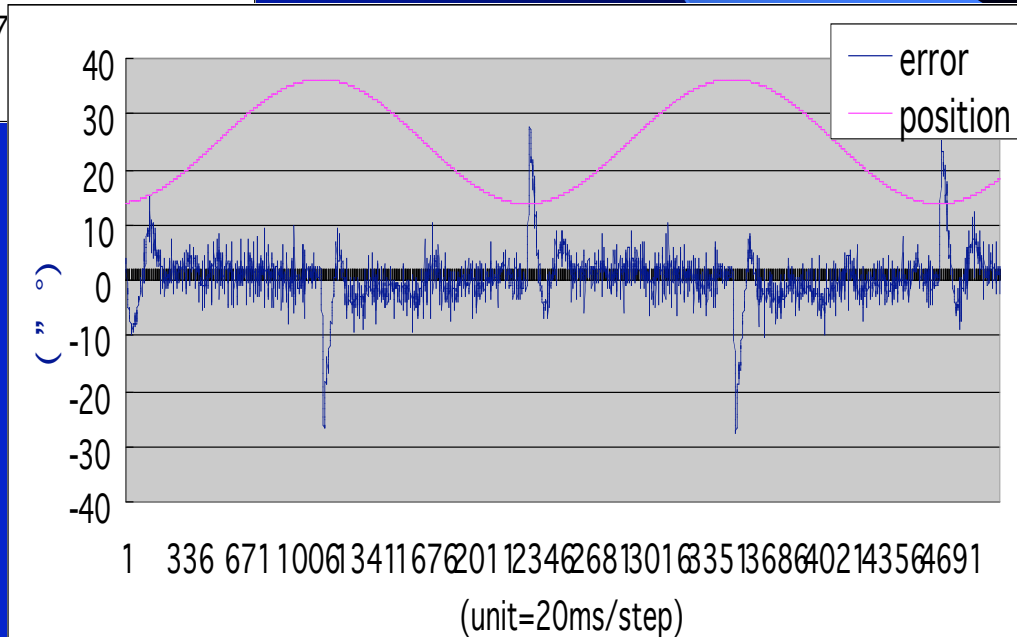
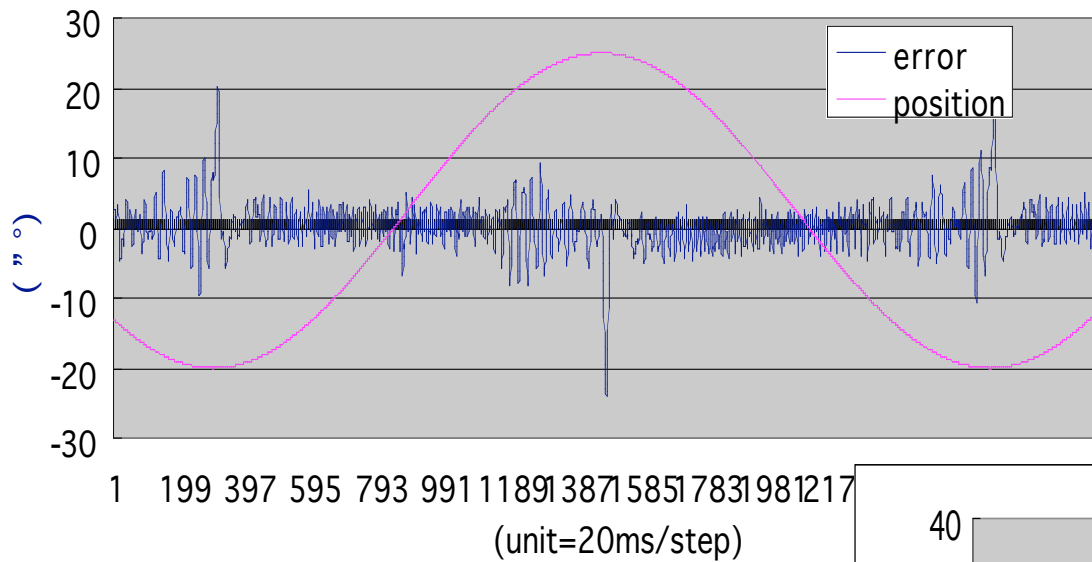
- Guide point $\alpha=17^\circ$, $\delta=29^\circ$
- Guide tracking accuracy: $\Delta A < 1''$, $\Delta E < 2''$



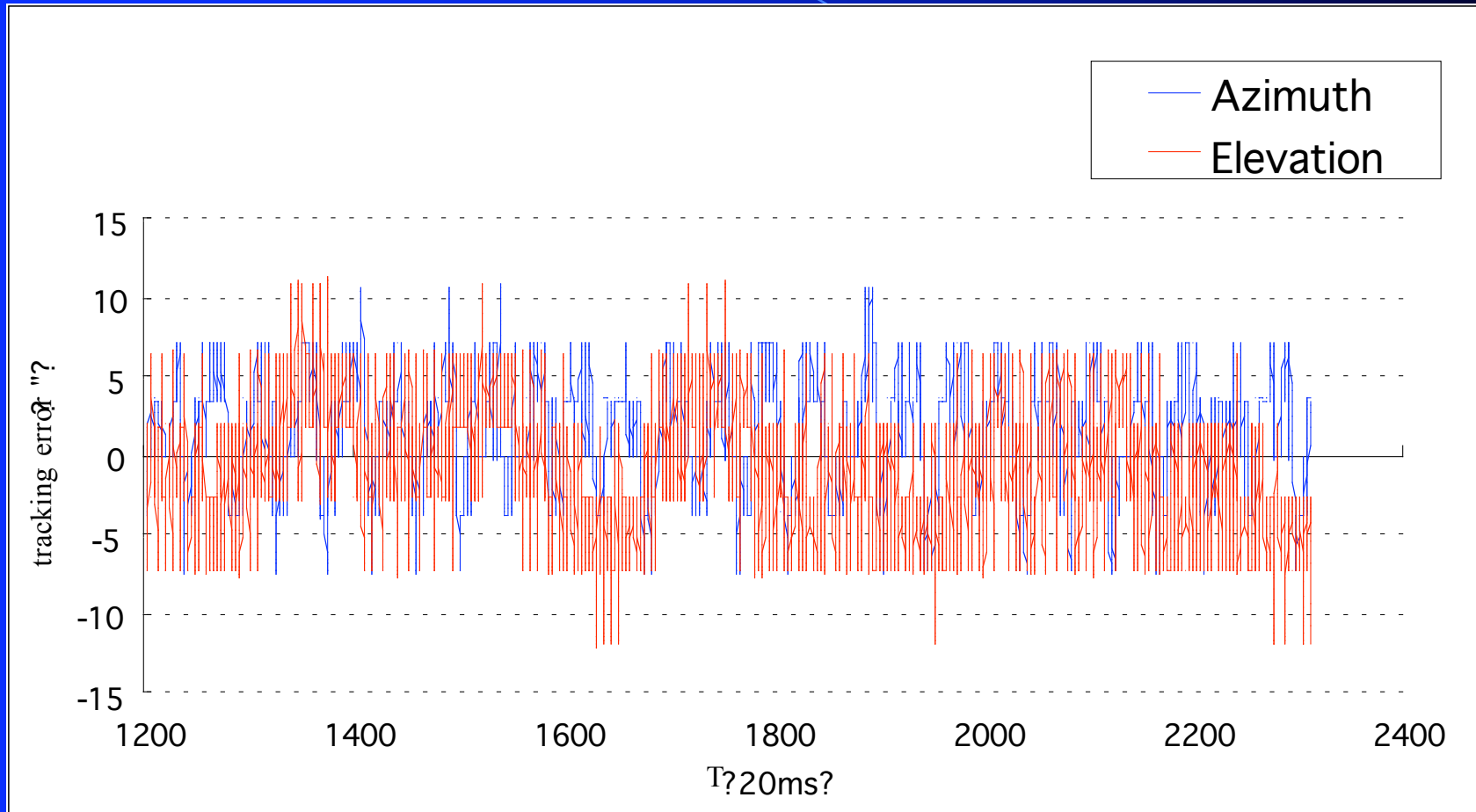
1.2m Telescope dynamic test

Velocity : Acceleration:

- A $3^{\circ}/s$ $0.4^{\circ}/s^2$
- E $1.5^{\circ}/s$ $0.2^{\circ}/s^2$



Result of tracking LEO satellite (Champ)



$\sigma A_{\max} = 10.7''$

$\sigma A_{\text{rms}} = 3.7''$

$\sigma E_{\max} = 11.1''$

$\sigma E_{\text{rms}} = 4.6''$

5. future

1. Finish the project
2. Resume SLR in 2004, include all targets.

Thanks!