



# NEO Telescope of PMO



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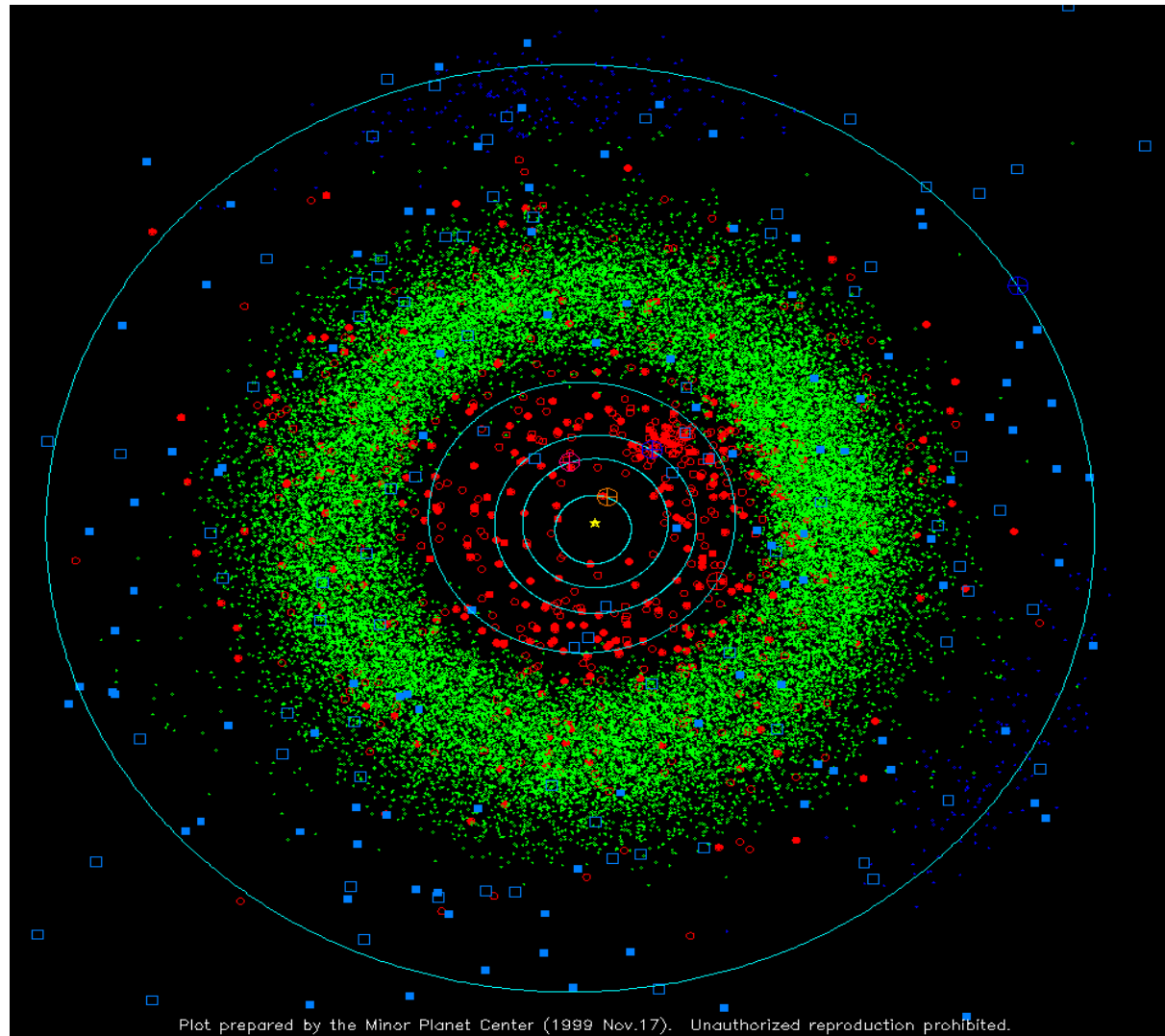
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# NEO Telescope of PMO

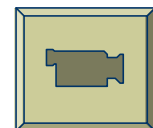
1. Background
2. Scientific Objective
3. 1.0/1.2 m Schmidt Telescope
4. Xuyu Observational Station

# The Main Belt of Asteroids



# Estimation of the NEOs' Number

style	found		estimate(by Shoemaker)	
	1994	2000.10	D>1km	D>0.1km
Aten(a<1.000)	14	87	150	45,000
Apollo(q<1.017)	113	526	1100	300,000
Amor(q<1.380)	89	527	750	220,000
total	216	1140	2000	565,000



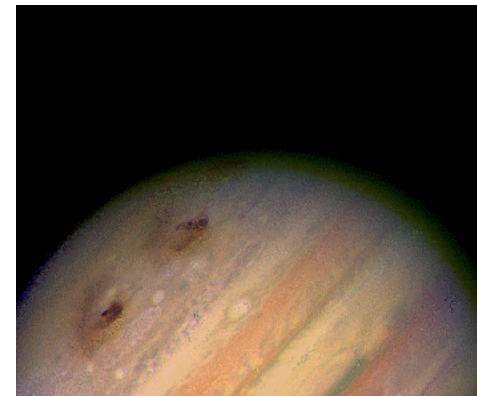
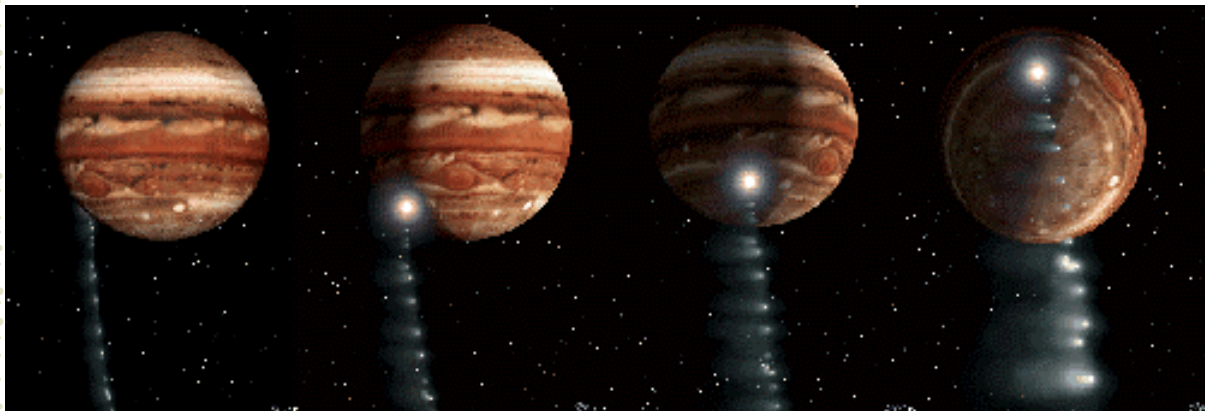


## Main Projects in 1990s

project	number	telescope and CCD	period
LINEAR	126	1m, 1960x2560	1996-1999
Spacewatch	35	0.9m, 2048x2048	1991-1999
R.H.McNaught (Siding Spring Obs.)	15	1.2m	1990-1996

# Comet SL-9 Impact on Jupiter

- ✍ July 16-22 1994 , 19 fragments of Comet SL-9 impacted Jupiter one by one.
- ✍ We predicted the event, our precision was good as same as that of JPL.





# Scientific Objectives

- 1 Survey NEOs
- 2 Determine the orbits of asteroids and comets, so that
- 3 to predict the possible collision events
- 4 Research the dynamical evolution of the orbits of asteroids and comets

# Main parameters of our Telescope

Schmidt system

Diameter of the Correcting Lens: 1.0m

Diameter of the Primary Mirror: 1.2m

Focal Ratio:  $F=f/D=1.8$  ( $f=1.8\text{m}$ )

Effective Field: 3.14 (linear diameter: 100mm)

Center Wavelength of the correcting Lens: 656.3nm

Light Power distribution: 80% of light in less than 2 (linear diameter is less than 20  $\mu\text{m}$ )

Distortion caused by optical designing and machining: less than 15  $\mu\text{m}$

Tracking precision: 1"/4 min



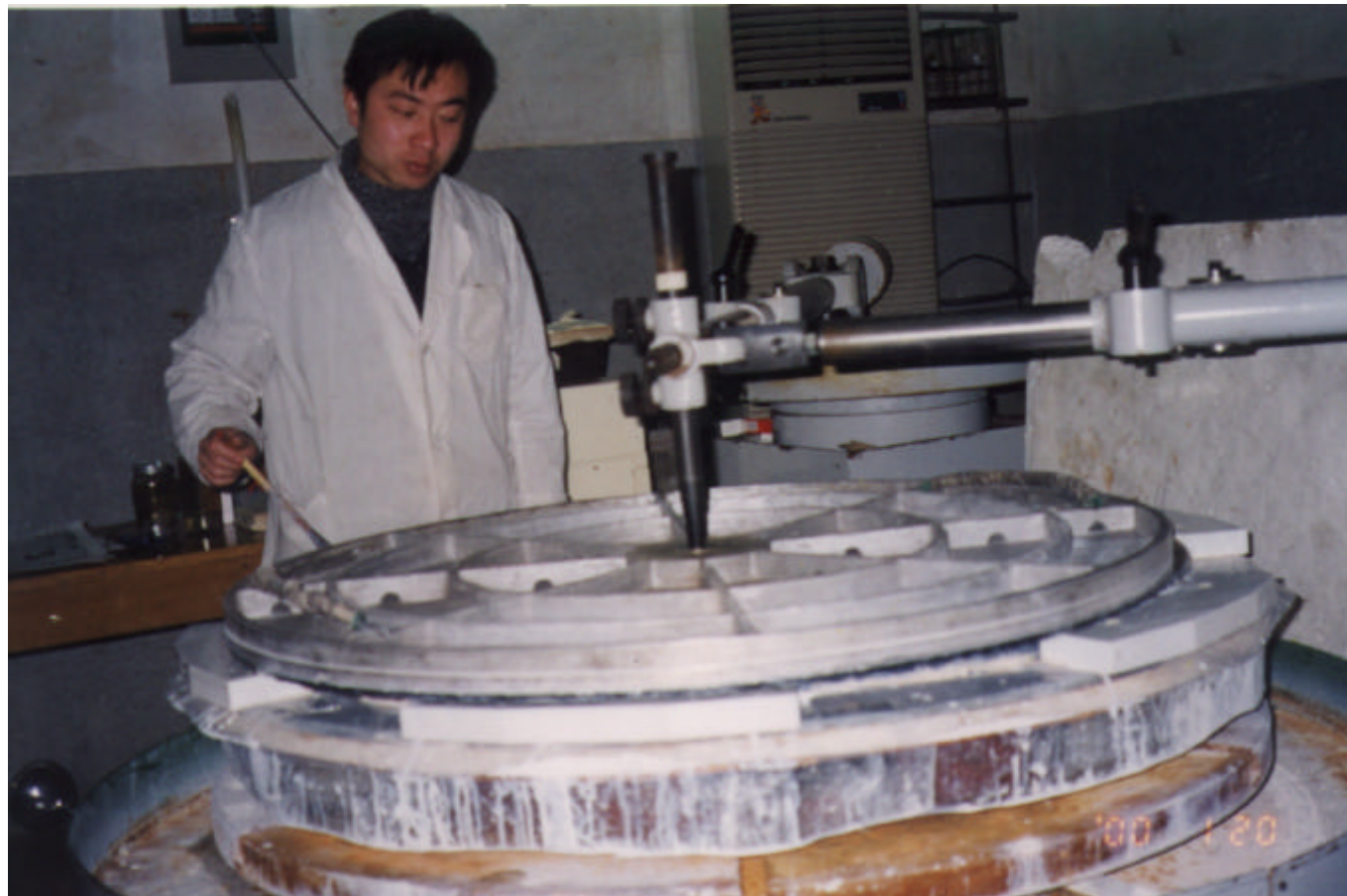
# Outline of Our NEOT



# Polishing Primary Mirror



# Polishing Schmidt Lens



# Xuyu Observational Station

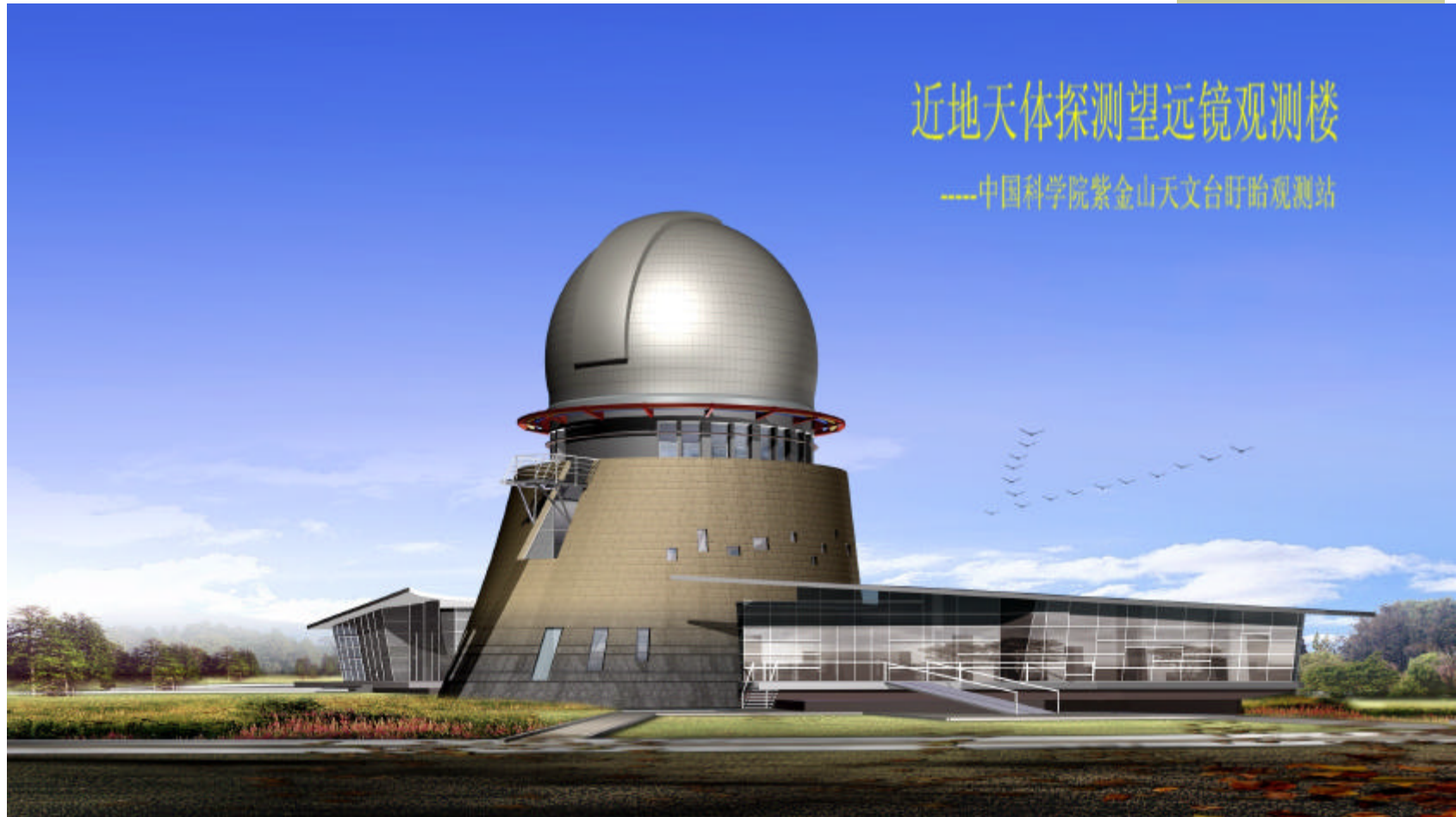
✎ Longitude: E  $118^{\circ} 27'.9, \pm 0.5'$

✎ Latitude: N  $32^{\circ} 44'.2 \pm 0.5'$

✎ Altitude: 180.9 m

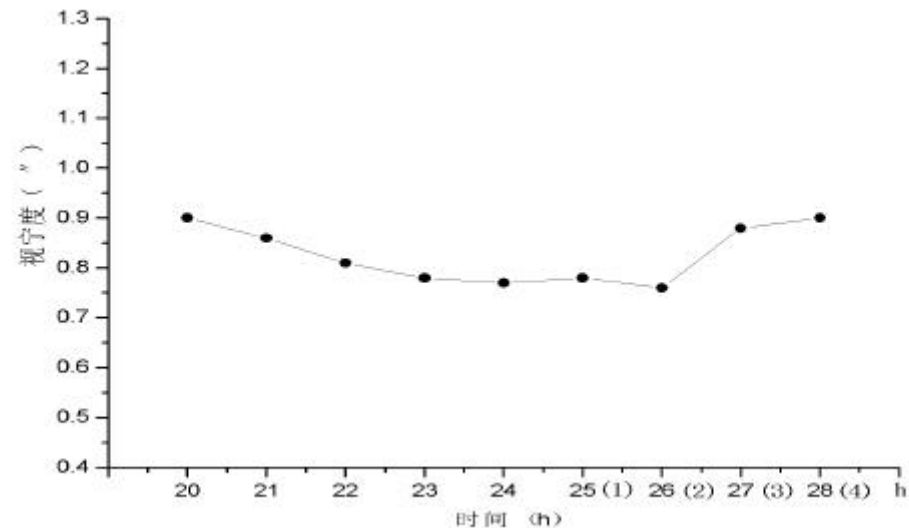
✎ Located at the north to Nanjing in 120 km

# Main Building for the NEO Telescope



# Seeing Observational Results

- ✍ From June to December 1999 we got total 1493 seeing, the average is ? =0.81? .
- ✍ Following diagram shows that seeing changes symmetry to midnight



# CCD Description

## (One of the Optional Plans )

- ✍ CCD Chip: Lockheed Martin Fairchild LMF486
  - Type Back thinned
  - Size 4k x 4k 14  $\mu$ x 14  $\mu$  1.6 sec/pix
- ✍ Cooling: CrgoTiger (-100  $^{\circ}$ C below)
- ✍ Read out : Ports 4 Speed Max 600k/sec
  - Aggregate Read out Rate 2.4M/sec
- ✍ Noise: Max Read Noise 15 electrons
  - Type Read Noise 13 electrons
- ✍ Dark: Type Dark Signal 0.007 electrons/pix/sec
  - (1.84m yuan ~\$0.23m for the CCD)