

PROPOSAL FOR EAST ASIAN INFRARED TELESCOPE

SHUJI SATO

Department of Astrophysics, Nagoya University, Nagoya, 464-8602, Japan

E-mail: ssato@z.phys.nagoya-u.ac.jp

(Received February 1, 2005; Accepted March 15, 2005)

ABSTRACT

The situations and locations of the Asian astronomical observatories are overviewed. I propose to construct a medium size Infrared Telescope at a good site in the Asian district.

Key words : observation — telescope — instruments

I. INTRODUCTION

We, astronomers in the far-east Asian countries, have four main observatories, all of which are located along the far-east of the Asian continent.

TABLE 1.

Country	Site	photo/spectr	seeing
China	Xinglong		
	Lijiang		
Japan	Okayama	20%/40%	1".4
Korea	Bohyonsan	clear night <30%	2"
Taiwan	Lulin		
India	Hanle		

The big observatories in the east Asian four countries. Hanle is located near the India-China boader.

The observational conditions are worse by a factor two, compared with the excellent sites such as 1) Mauna Kea, 2) Chile, 3) La Palma and 4) the Antarctic, where they enjoy 60% photometric and 80% spectroscopic nights of a whole year and better than 1" seeing frequently. As for the conditions in the Asian monsoon zone along the east side of the Asian continent, we experience stable seeing but humid/rainy nights in the summer season, but clear nights with poor seeing in the winter season.

There might be good or excellent sites, that is, dry and cold in the "Trans-Himalaya ~ West China", comparable with the world level conditions. In this district, there is a vacancy of astronomical observatories between 75 and 120 degrees of the longitudes. It hampers the continuous monitoring of time-variabilities and the quick look of sporadic phenomena.

Proceedings of the 6th East Asian Meeting of Astronomy, held at Seoul National University, Korea, from October 18-22, 2004.

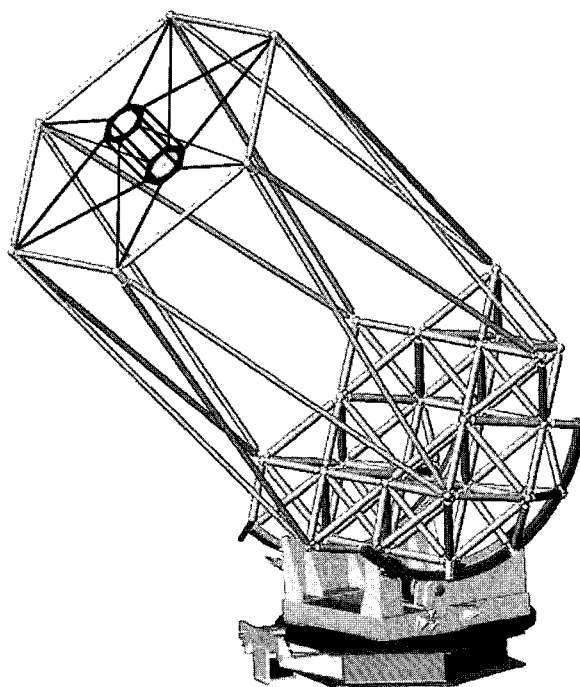


Fig. 1.— Concept of a light-weight and low-cost telescope mounting (M. Kurita: Nagoya Univ.)

II. RESEARCH, DEVELOPMENT AND PROPOSAL

We started the medium sized infrared telescope project since EAMA-5 held in Taiwan, with the concept that "the simpler, the better, and the sooner, the better", as 1) 2.5m in diameter, 2) low-cost and high-accuracy, and 3) a single instrument on a single/simple telescope to survive in the VLT era.

The mounting has been nearly completed within the budget of \$ 0.3M. The pointing / tracking test using natural stars will be scheduled in March, 2005. We seek for a mirror of 2.5 to 3 m diameter, available from USA, Russia, Finland, or Nanjing with the cost of \$ 1M. We are also seeking a new technique to figure the segment-

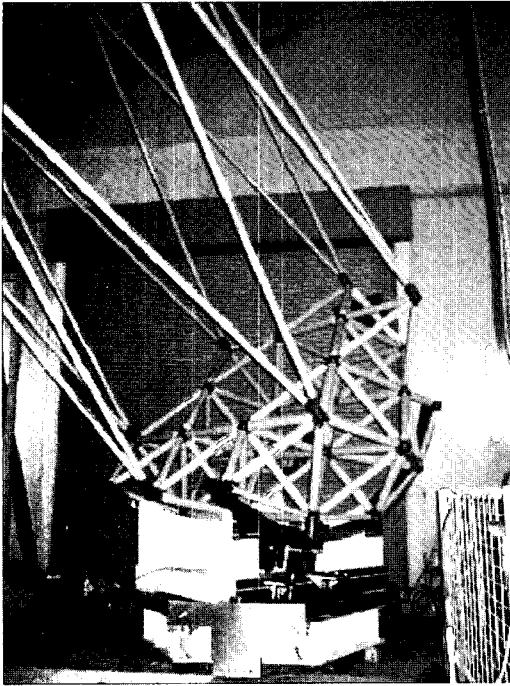


Fig. 2.— Test model of the light-weight and low-cost telescope developed by M. Kurita in the Nagoya University.

mirrors by introducing a novel grinding machine.

III. CONCLUSION

We proposed and have been promoting the EAMA IR-telescope in collaboration among the east Asian countries. Site-survey and engineering-development are ongoing. We have built a proto-type of the telescope mounting in Nagoya University, the experimental results of which have been proved excellent and presented in this talk. We are keen to realize the Infrared Telescope with a medium-size of 2.5 to 3m in diameter in collaboration among the east Asian countries.

REFERENCES

Kurita, M., PhD thesis, 2005, submitted to Department of Astrophysics, Nagoya University