



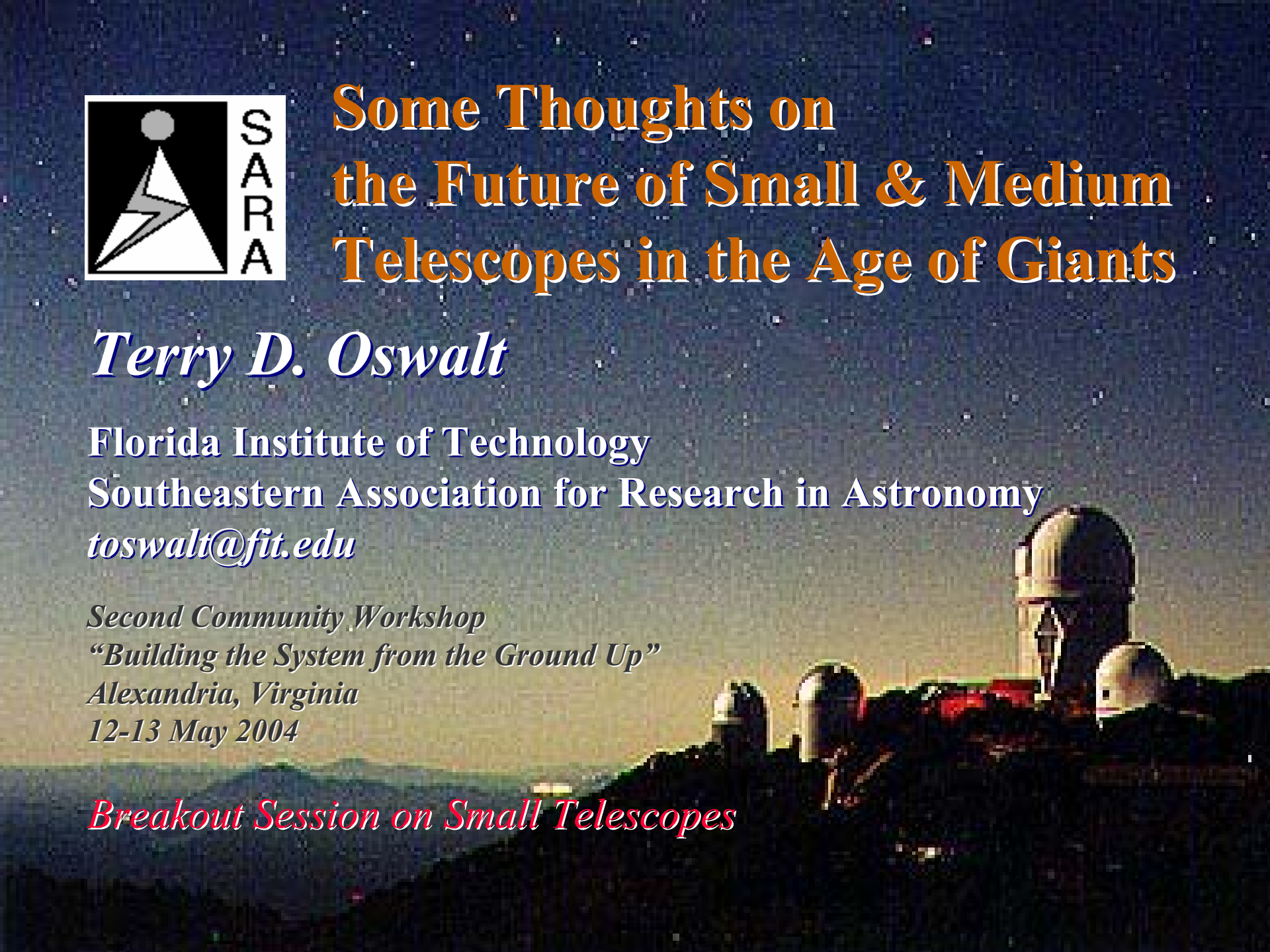
Some Thoughts on the Future of Small & Medium Telescopes in the Age of Giants

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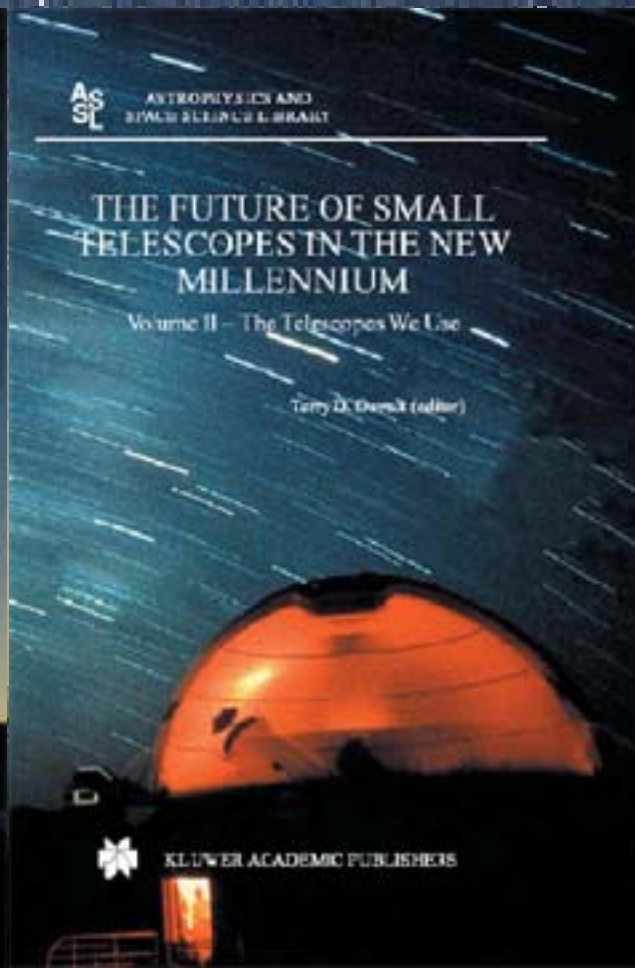
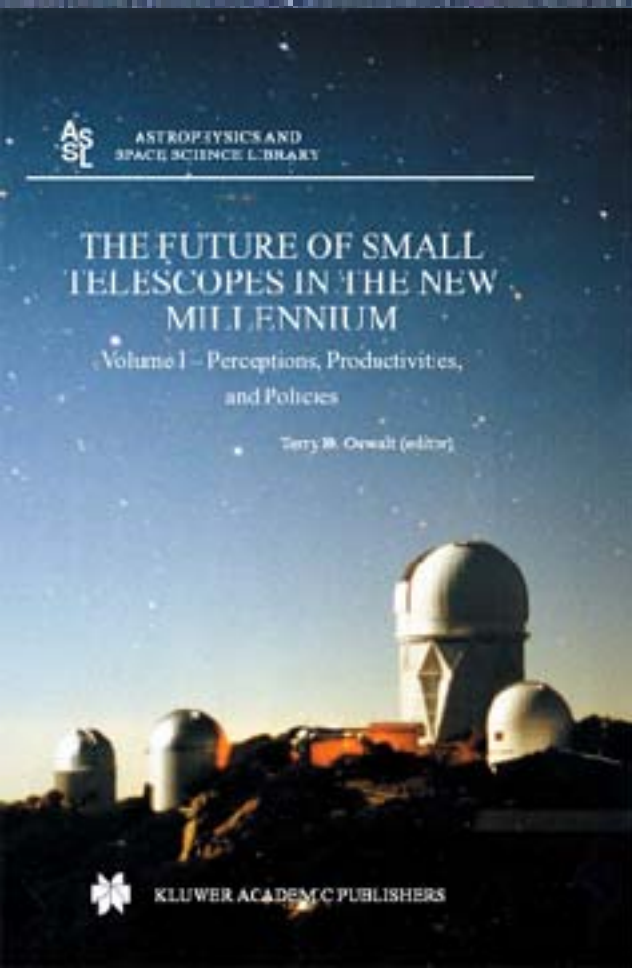
*Second Community Workshop
“Building the System from the Ground Up”
Alexandria, Virginia
12-13 May 2004*

Breakout Session on Small Telescopes



The Community's Opinions:

*"The Future of Small Telescopes in the New Millennium"
over 100 coauthors, Kluwer 2003*



Essential Functions

- Education

 - Public access (KPNO amateur program)

 - K-12 student access (e.g. “Hands-On Universe”)

 - UG training, (e.g. NSF “Research Experiences for Undergraduates”)

- Research

 - Unique projects (time domain, long-term, synoptic, survey)

 - “Precursor Science” for space missions (e.g. NStars, TPF precursor)

 - Follow-up investigations for ground- & space-based telescopes

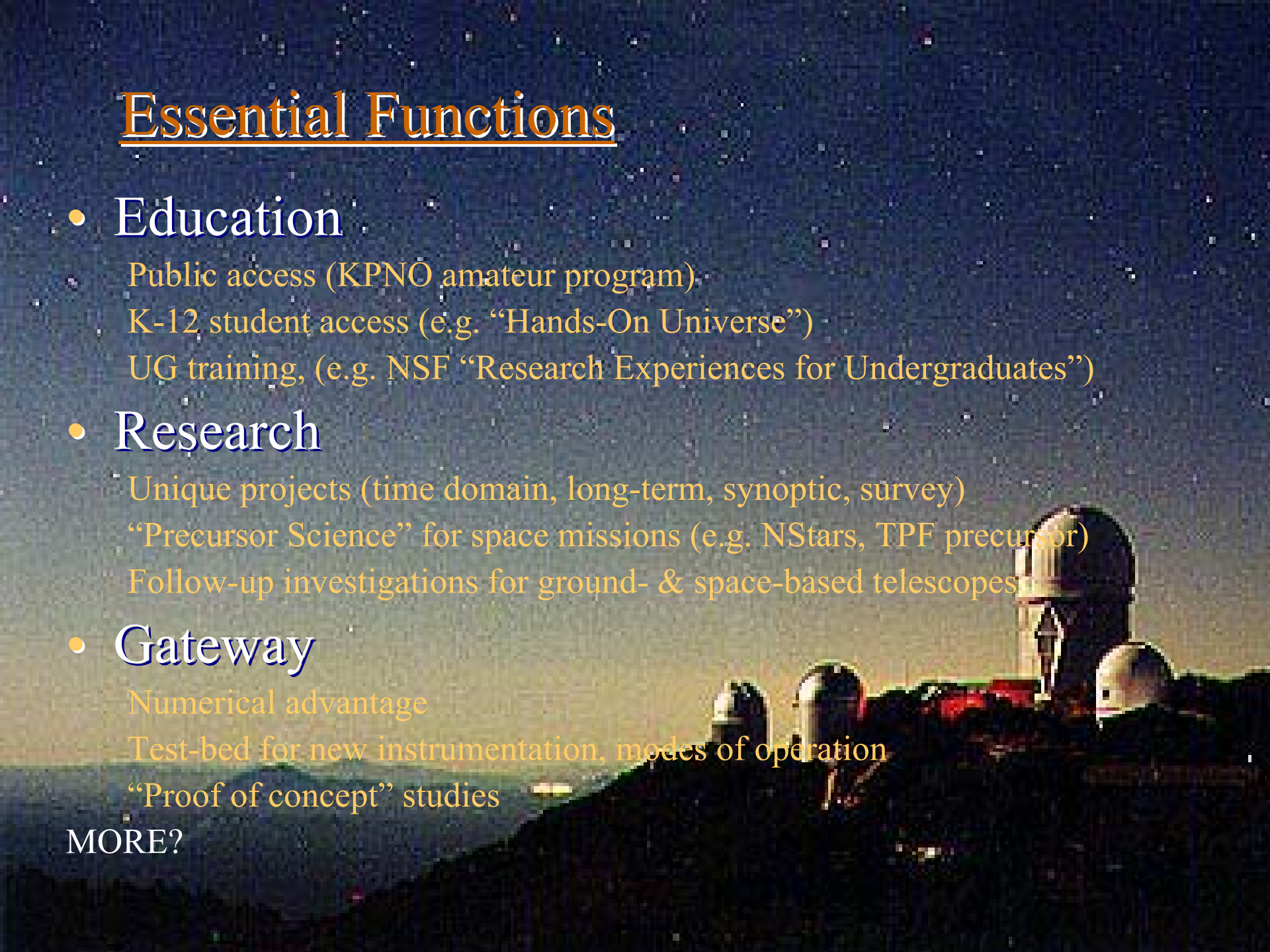
- Gateway

 - Numerical advantage

 - Test-bed for new instrumentation, modes of operation

 - “Proof of concept” studies

MORE?



Challenges

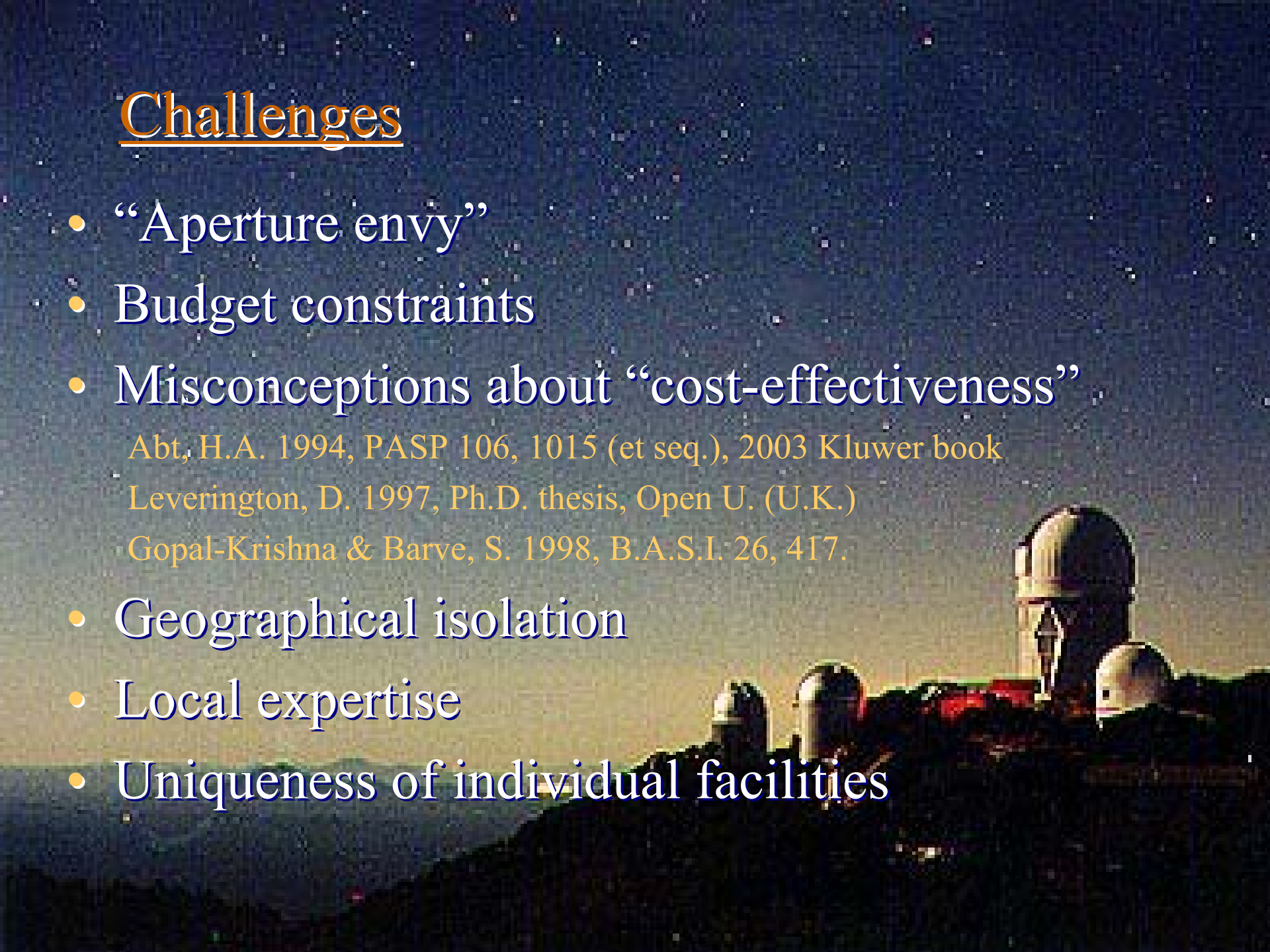
- “Aperture envy”
- Budget constraints
- Misconceptions about “cost-effectiveness”

Abt, H.A. 1994, PASP 106, 1015 (et seq.), 2003 Kluwer book

Leverington, D. 1997, Ph.D. thesis, Open U. (U.K.)

Gopal-Krishna & Barve, S. 1998, B.A.S.I. 26, 417.

- Geographical isolation
- Local expertise
- Uniqueness of individual facilities



Opportunities

- Automation & remote web access
- Standardized instrumentation & software
- Networking between facilities
e.g. ITeC: a real global network
- Communication & publications
e.g. AAVSO, ALPO, IAPPP, IOTA, etc.
- Consortia & collaborations
e.g. NURO, SARA, SMARTS, WIYN, etc.



Opportunities, continued...

- Education & public outreach programs
e.g. ASTRO, HOU, IDEA, REU, etc.
- Regular topical meetings
e.g. Rochester AAS, June 2000
- Funding targeted at smaller facilities
e.g. PREST, AAS, NStars, Research Corp.
- National representation & coordination
NOAO's special role

First step: Community-based study

Program for Research & Education with Small (0.5-2.5m) Telescopes PREST

- \$1.2M for 4-8 awards in FY04 (\$150-300K)

June 4, 2004 and January 20, 2005

- Eligible activities

Acquisition of telescopes and essential infrastructure (domes)

Instrumentation for new or existing telescopes

Refurbishment & improvements to existing telescopes & systems

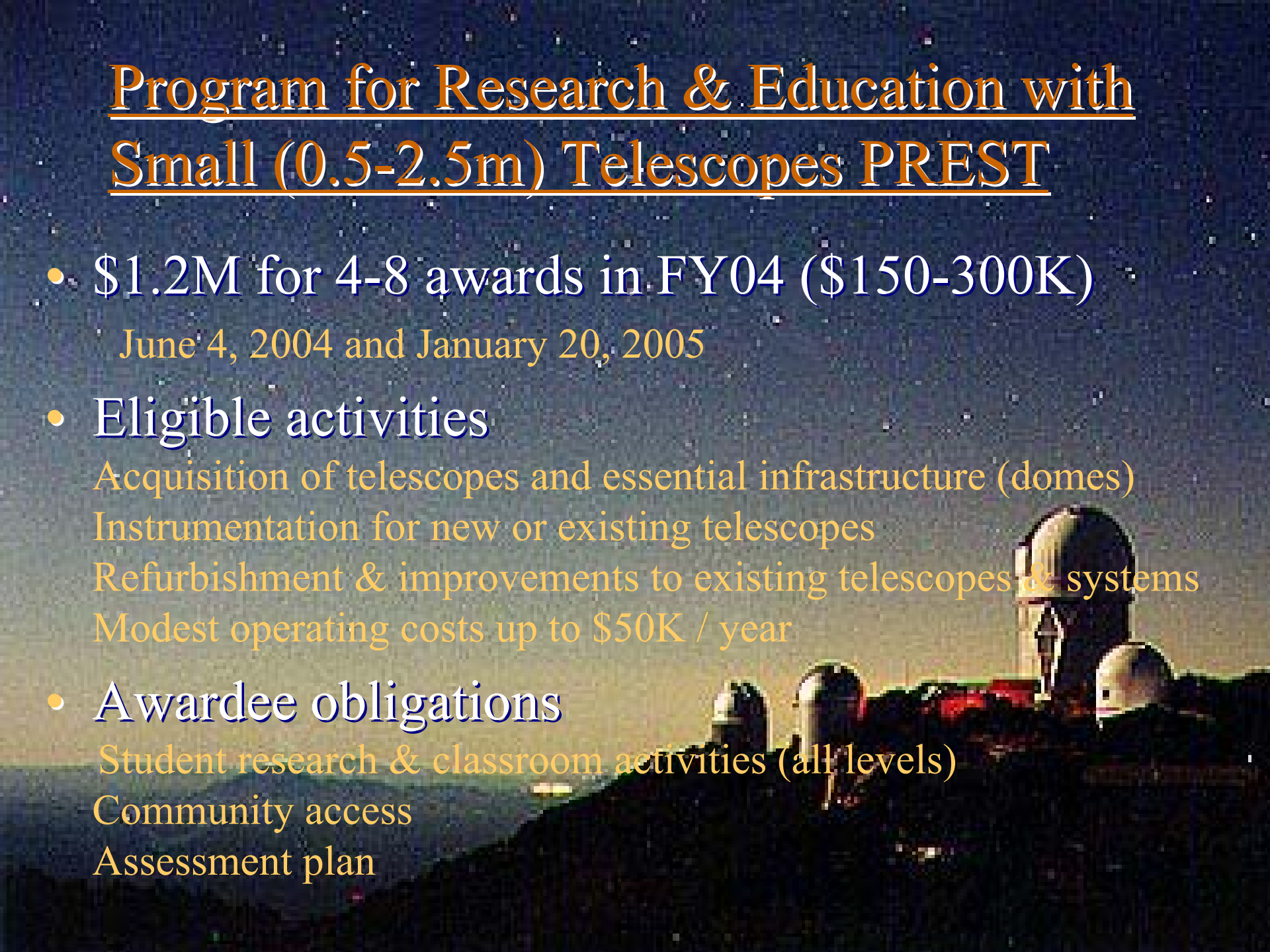
Modest operating costs up to \$50K / year

- Awardee obligations

Student research & classroom activities (all levels)

Community access

Assessment plan



Strawman “Small Telescope Decadal Plan”

- Build from PREST foundation in FY05
modernize some current facilities, fund some new facilities
- NOAO: administrative center of new National Telescope System Consortium (NSTC)
national resource for technical support, standardized archiving, instrumentation & software, AURA representation, scheduling
- Member obligations
10% community observing time + annual ‘JUF’, perhaps jumpstarted by PREST support according to scientific merit, “associate tenant” status

**Small telescopes are ESSENTIAL
to the future of Astronomy!**



Let's TALK!

“Only dumb people need big telescopes.”

Olin Eggen (1919 - 1998)

Breakout Discussion Focus:

- How should PREST evolve?
- Should TSIP include “medium” 3-6m telescopes?
- Factors to consider
 - What are unique problems of small & medium telescopes?
 - What is missing in the current program?
 - What are OUR priorities?
 - How should programs evolve as “large” becomes “small”?
 - Should NOAO help unify smaller telescopes in system?
 - How can small & medium telescopes contribute to NVO?