THE UNIVERSITY OF ARIZONA
Research
Innovation & Impact

Aerospace at the University of Arizona

Stephen Fleming

Vice President

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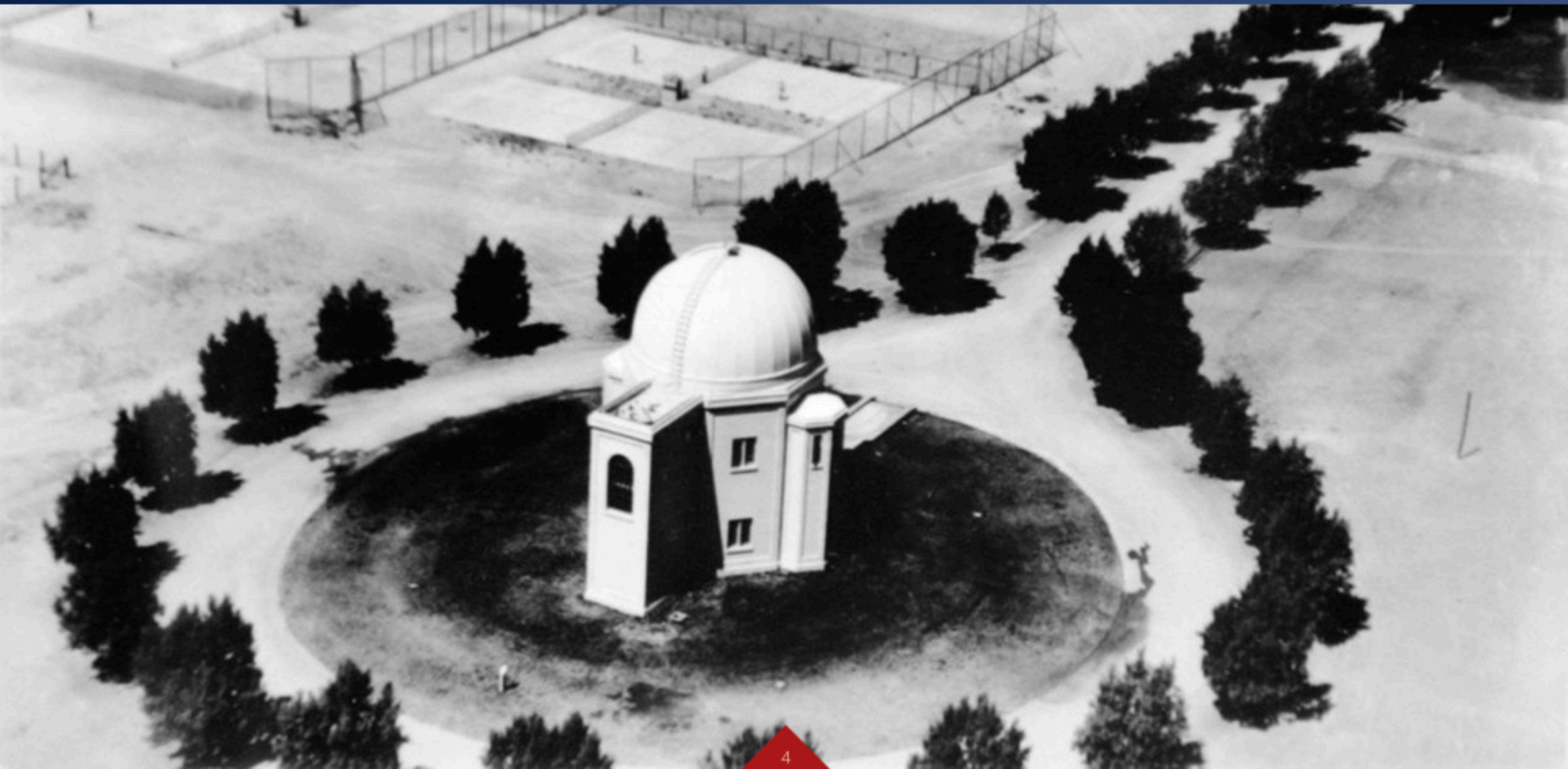
Arizona's History with Spaceflight

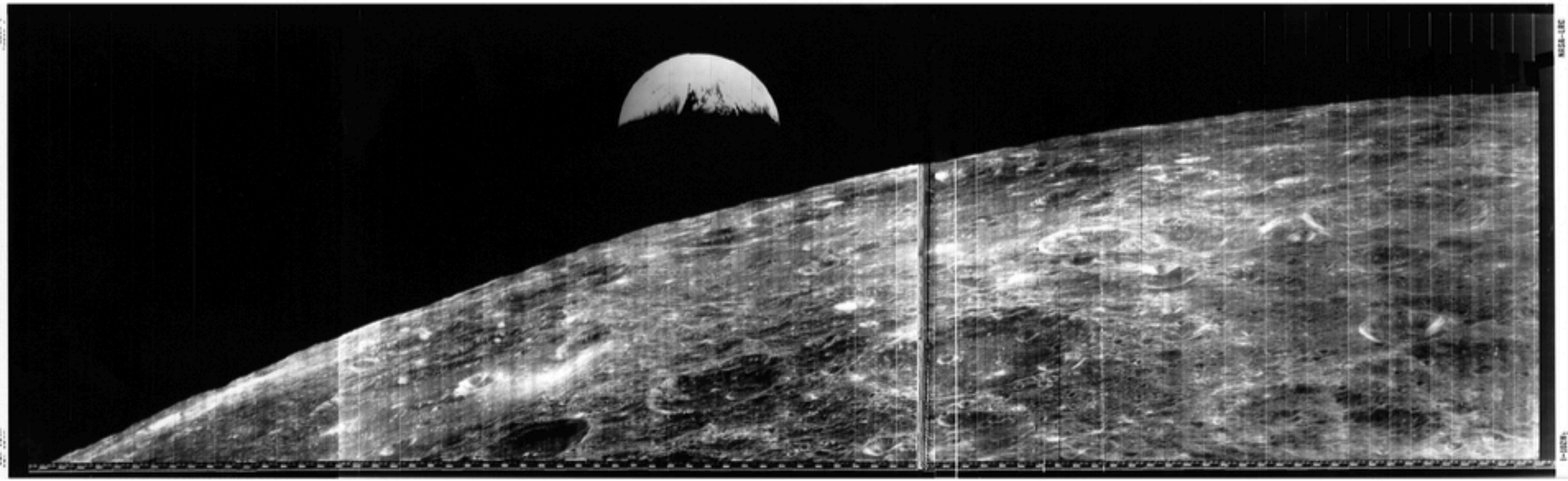
Arizona's History with Spaceflight

Steward Observatory founded in 1916



Ranger VII mapped sites for Apollo (1964)

NASA Lunar Orbiter (1967)

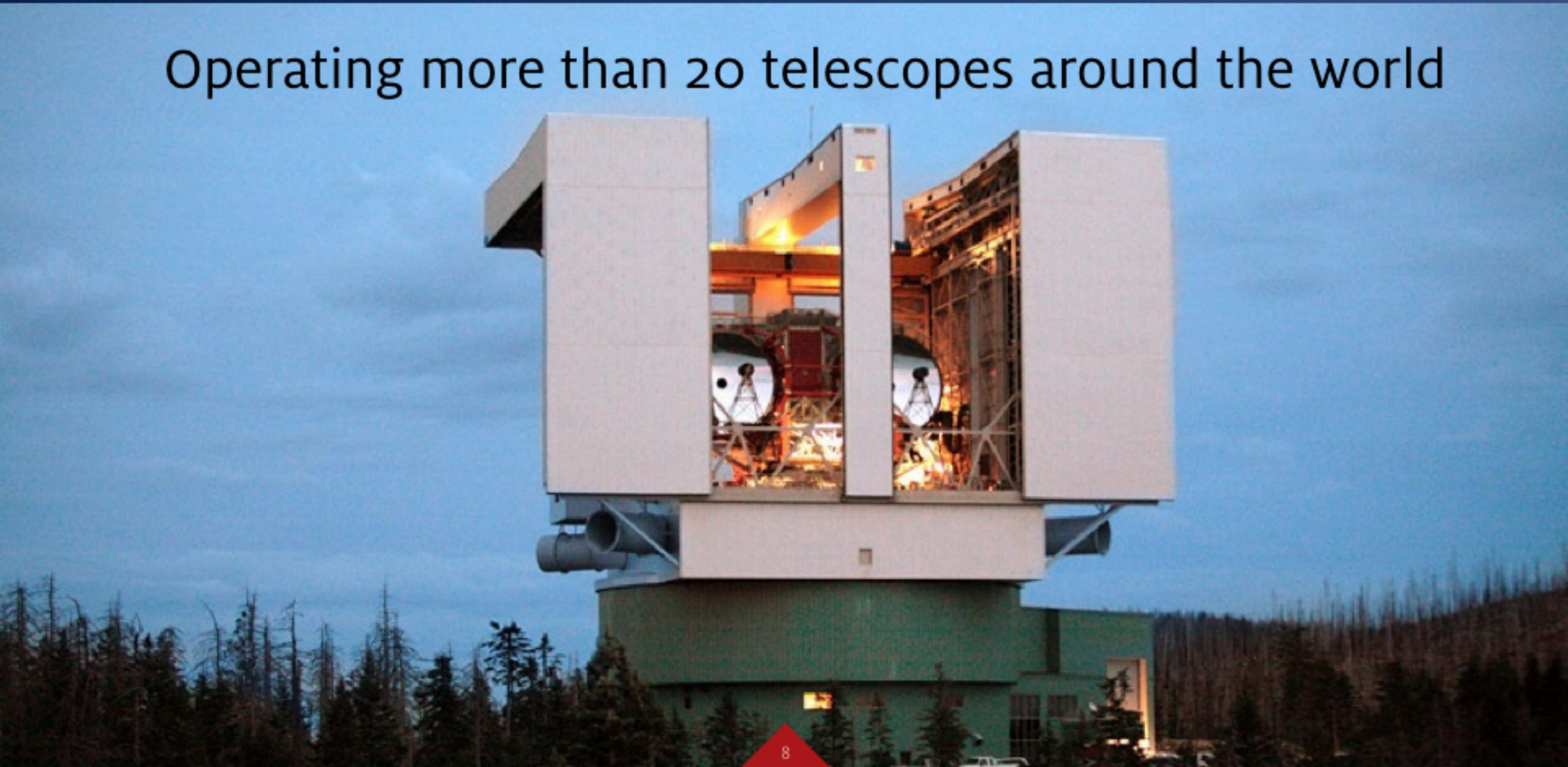


First image of the Earth taken from the vicinity of the Moon… processed by LPL in Tucson!

Mars Reconnaissance Orbiter: HI-RISE

#1 Astronomy Program

Operating more than 20 telescopes around the world



#1 Astronomy Program

No other US university operates its own radiotelescope.
UA has two.

Giant Magellan Telescope

UA is fabricating seven mirrors that together will be the world's largest telescope in 2025.

GUSTO Stratospheric Observatory

Studying interstellar space from 17 miles above the atmosphere

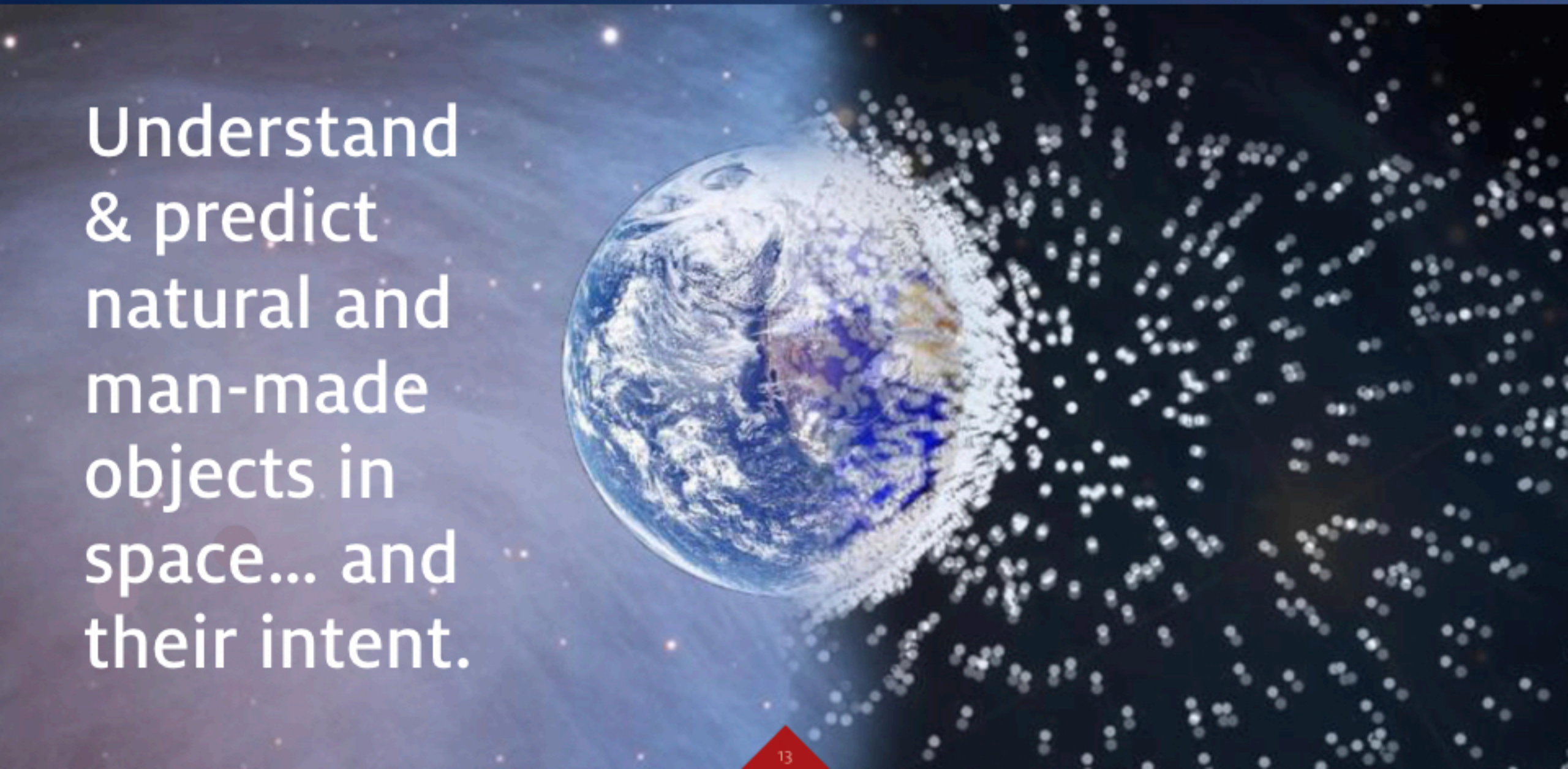
First Direct Image of a Black Hole

Multi-national effort coordinated through UArizona's CyVerse system

CYVERSE™

NSF

Space Situational Awareness – Arizona



Understand & predict natural and man-made objects in space… and their intent.

U.S. Space Force

Source: *Moonraker*, United Artists, 1979

U.S. Space Force

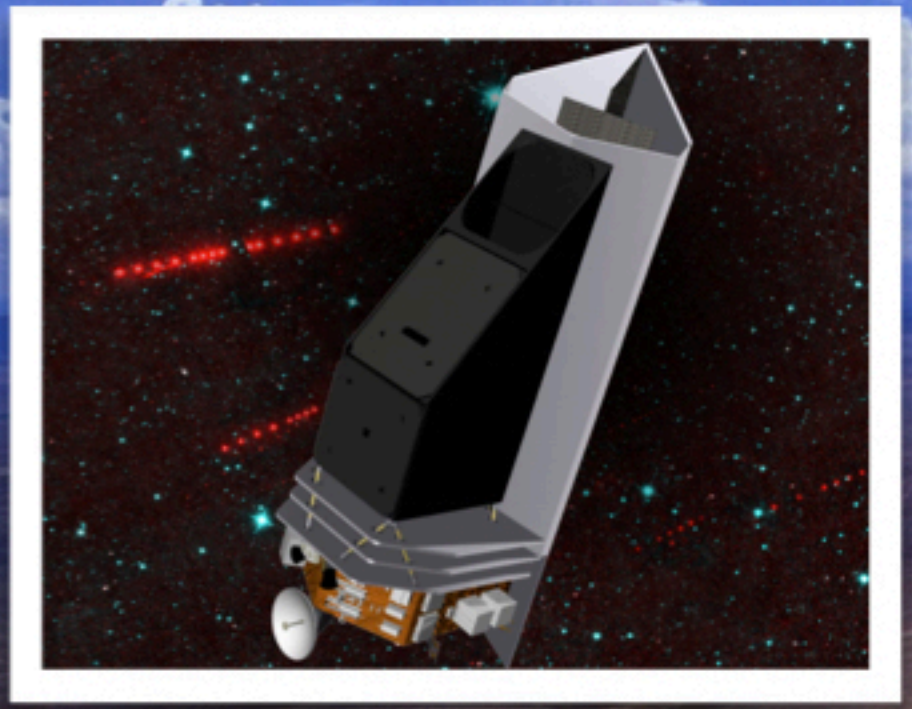
Source: *Moonraker*, United Artists, 1979

Potential Role for Davis-Monthan?

Catalina Sky Survey

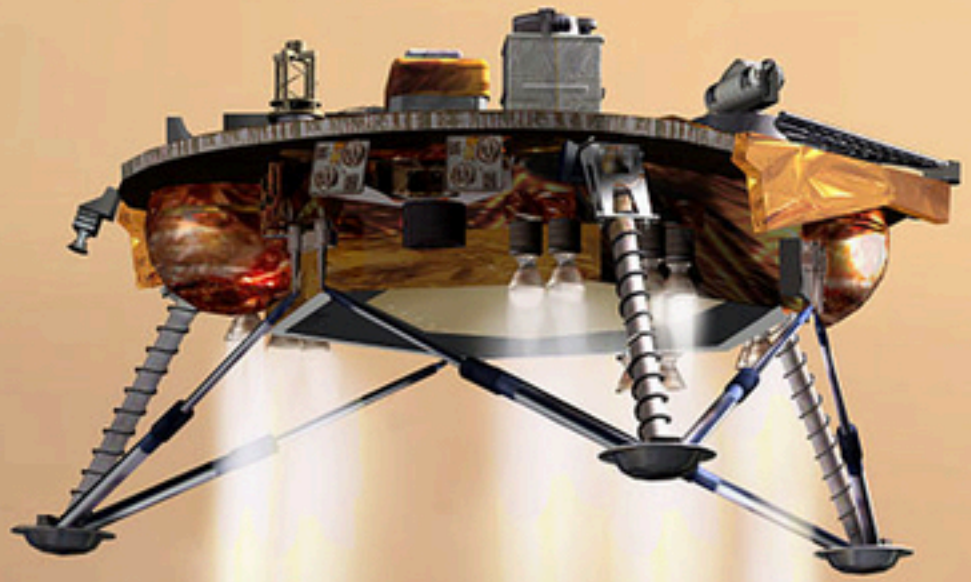
More than half of known near-Earth asteroids were discovered by UA scientists and students.

Planetary Defense



Providing technical leadership for NASA's new $500M threat detection mission: NEOSM

Mars Phoenix Lander



UA was prime on $400M NASA Mars lander

First NASA mission led by a public university

OSIRIS-REx

UA is prime on
$1 billion NASA
asteroid sample
return mission

OSIRIS-REx

Goal:

First US mission to return an asteroid sample to Earth.

In orbit around Bennu.
Launched September 2016.

Univ of Arizona Advanced Research Corp.

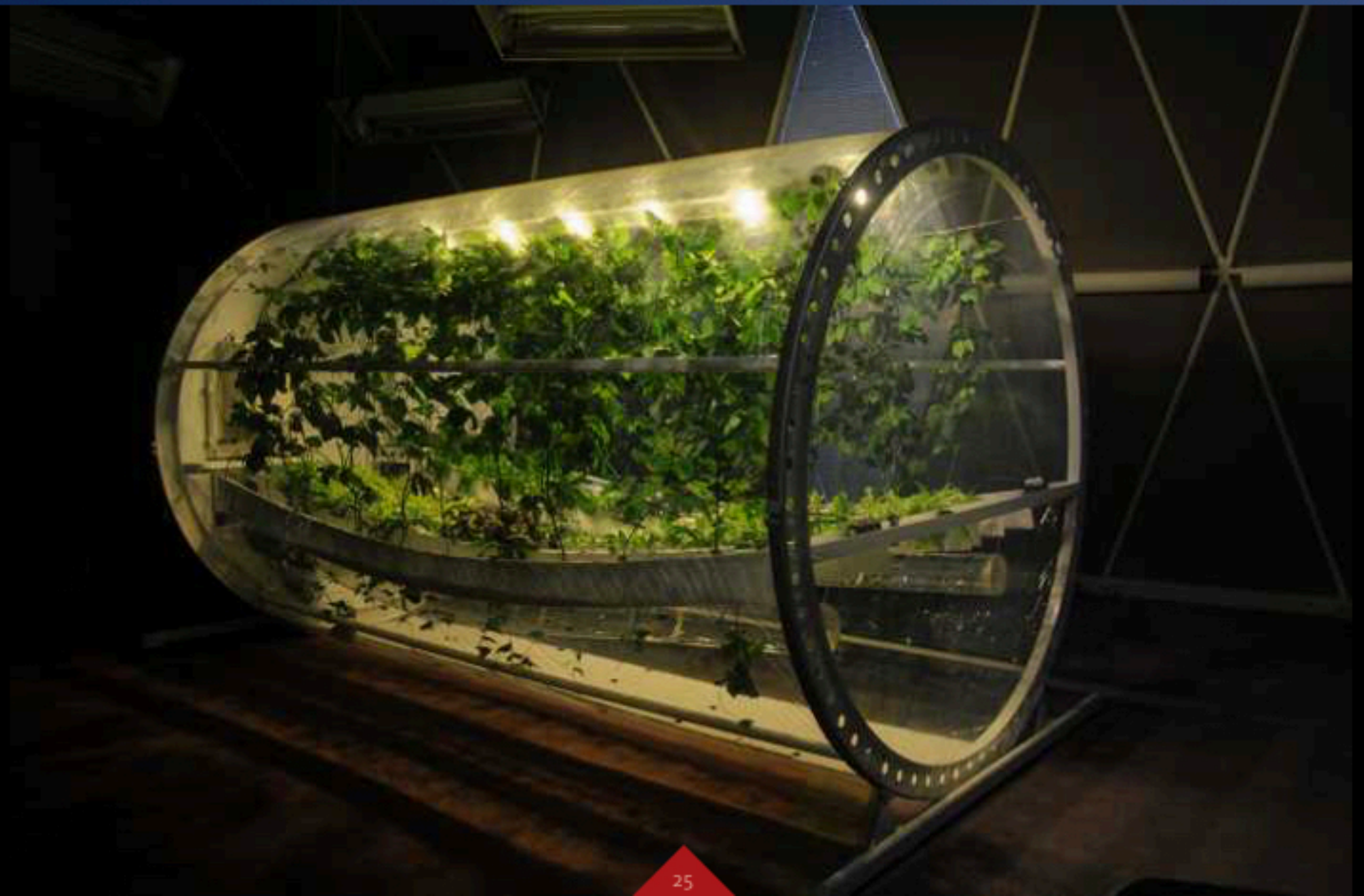
UA-ARC

An interdisciplinary research center leveraging UA's strengths in defense and security applications.

Hypersonic Wind Tunnels

Hypersonic Materials

Biosphere 2: Lunar Greenhouse



Space Medicine Research

Positive Return on Investment

Example: **UA Lunar and Planetary Lab**

FY19 State budget $3.2M

FY19 Federal awards $40M

= 12:1 ratio

Traditional NASA Centers

Emerging "New Space" Clusters

Deloitte SAzSE Study

Southern Arizona Space Ecosystem Feasibility Study — August 2018

ARIZONA

uaventurecapital

PIMA COUNTY

ARIZONA Space Business Roundtable

SUN CORRIDOR INC

SALC
Southern Arizona Leadership Council

Deloitte SAzSE Recommendations

Southern Arizona should focus on four areas:

- Space Situational Awareness
- Launch Services and Manufacturing
- Metals, Mining, Minerals, and Resources
- Enabling and Supporting Technologies

Arizona Space Business Roundtable

https://research.arizona.edu/arizona-space-business-roundtable

Arizona Space Business Roundtable

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Thank You!

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