AURA Perspective

Heidi B. Hammel

AURA Executive Vice President

Presented to the NRC OIR System Committee

13 October 2014

AURA basics

Non-profit started in 1957 as a consortium of universities established to manage public observatories

Members currently include **39 US** and **6 international** institutions

Representative of the broader astronomical community

Manage major observatories

AURA core principles

Merit-based access
to information about the universe

maximizes scientific return on investments
in astronomical facilities, surveys, and archives

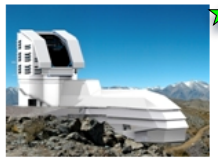
Forefront innovations – in facilities, technology, and data science – **drive discovery** in astronomical sciences

AURA's mission

To promote excellence in astronomical research
by providing access information about the universe
from state-of-the-art facilities, archives, and surveys

Role of AURA, its governance, and its management

GEMINI OBSERVATORY - The Gemini Observatory is an international partnership to operate twin 8.1-meter telescopes, one on Hawaii's Mauna Kea and the other on Chile's Cerro Pachon. The partners include the United States, Canada, Chile, Australia, Brazil, and Argentina. AURA manages Gemini under the auspices of the International Gemini Board and the U.S. National Science Foundation as its executive agency.



LARGE SYNOPTIC SURVEY TELESCOPE (LSST) - The LSST is a public-private partnership to operate an 8.4-meter telescope on Chile's Cerro Pachon. The partnership includes funding agencies, private foundations, individuals, and LSST Member Institutions. The LSST is a wide-field telescope facility that will add a qualitatively new capability in astronomy. For the first time, the LSST will provide time-lapse digital imaging of faint astronomical objects across the entire sky. AURA operates LSST for the National Science Foundation under cooperative agreement.

NATIONAL OPTICAL ASTRONOMY OBSERVATORY (NOAO) - NOAO operates telescopes for night-time astronomy. These telescopes are located on Kitt Peak in Arizona and Cerro Tololo in Chile, and are used by approximately one thousand professional astronomers and students each year. In addition, NOAO provides support for the involvement of the U.S. astronomical community in the Gemini Observatory. AURA operates NOAO for the National Science Foundation under cooperative agreement.

NATIONAL SOLAR OBSERVATORY (NSO) - The mission of the National Solar Observatory is to advance our understanding of the Sun in its astrophysical context as a star, as the driver of conditions in interplanetary space, in its influence on the terrestrial atmosphere, and in its role in long-term climate change. NSO provides observing facilities for use by the nation's solar and solar-terrestrial physics community. NSO conducts research at Sacramento Peak in New Mexico and at Kitt Peak in Arizona. Its current major initiative is the Daniel K. Inouye Solar Telescope (DKIST). AURA operates NSO for the National Science Foundation under cooperative agreement.

SPACE TELESCOPE SCIENCE INSTITUTE (STScI) - STScI carries out the scientific mission of the Hubble Space Telescope, the most powerful optical/ultraviolet observatory in space. From Baltimore, Maryland, STScI serves astronomers everywhere who observe the universe with Hubble. In addition, STScI is developing the Science and Operations Center for the James Webb Space Telescope (JWST). JWST will be Hubble's successor and is currently scheduled to launch in 2018. AURA manages STScI under contract with the National Aeronautics and Space Administration (NASA).

☆ AURA Corporate Office (DC), AURA Observatory in Chile (Santiago), AURA Centralized Administrative Services (AZ)

Establish, operate, and promote **public access observatories** and **science institutes** that serve the astronomical community

AURA Management • AURA Governance

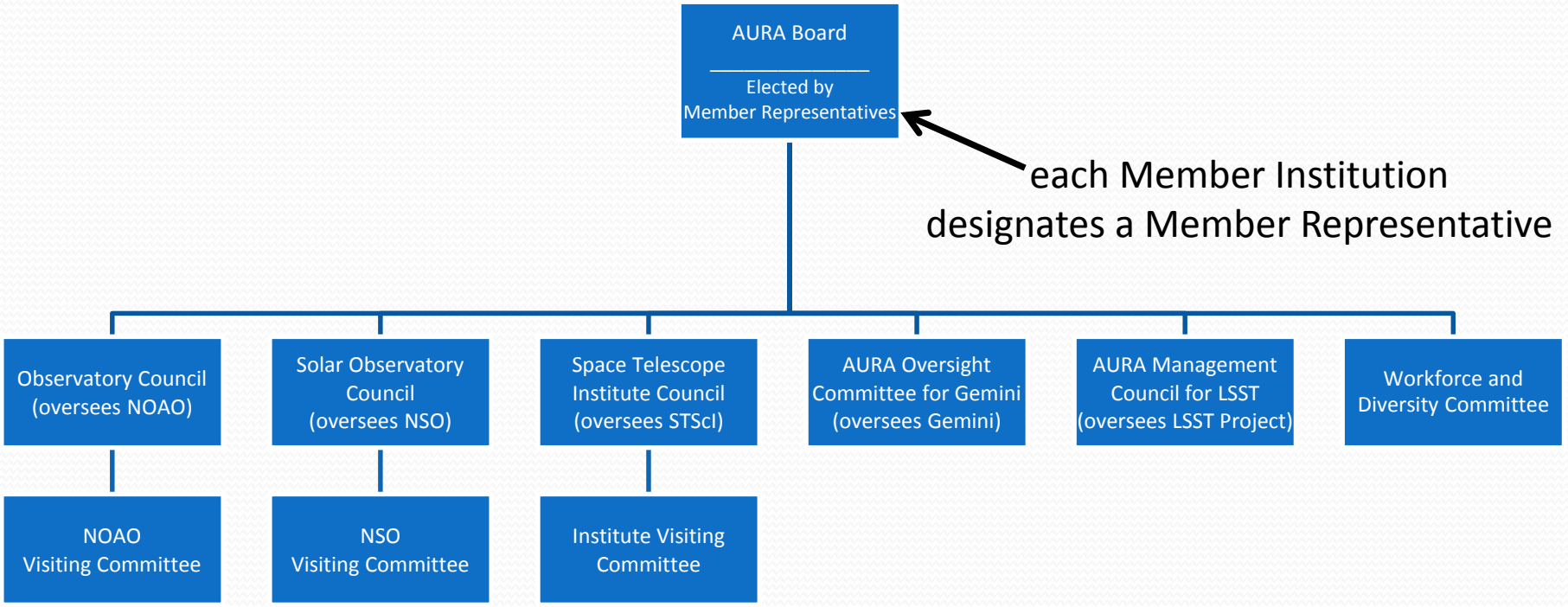
AURA functions as an **employee-based managing organization**

AURA provides **community-based governance** for its facilities

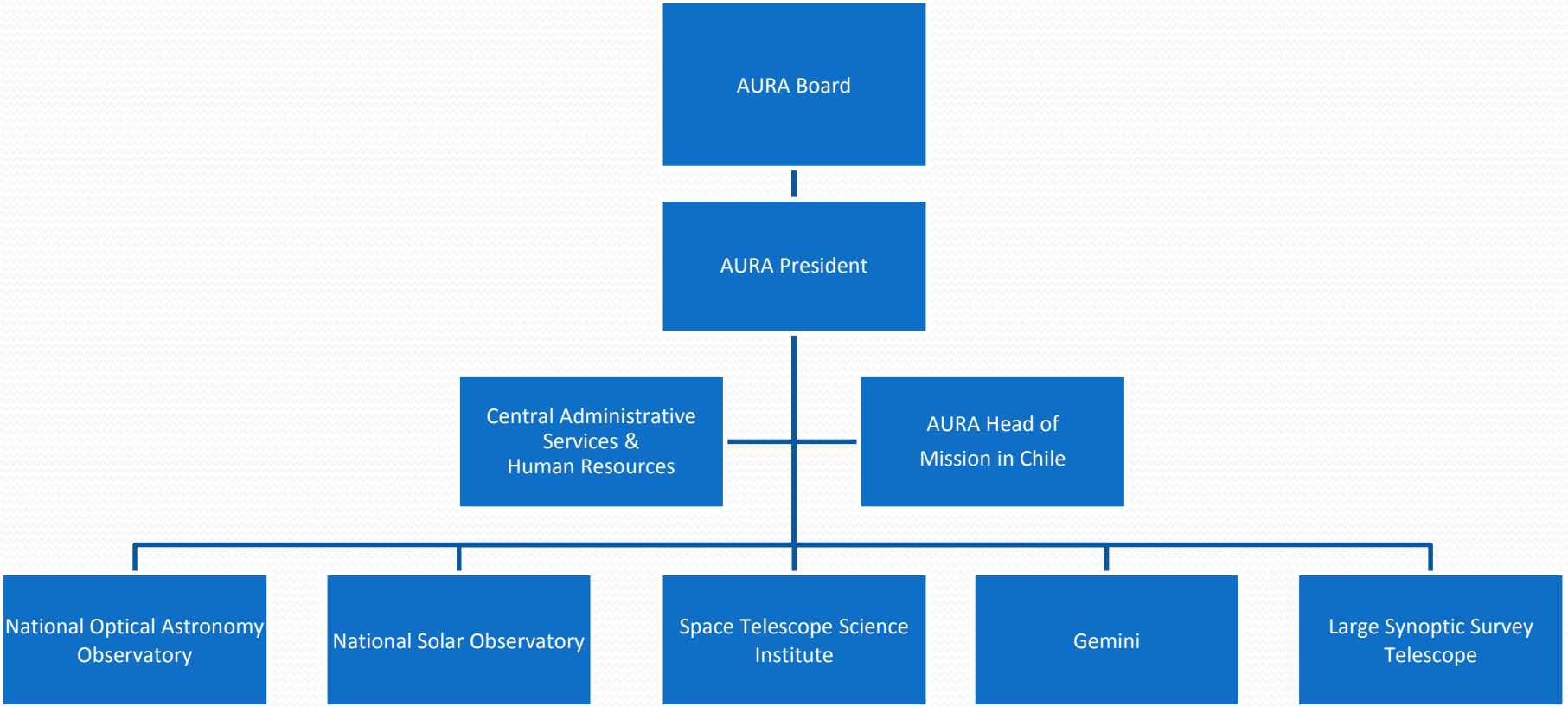
AURA advances astronomy by melding these two areas – management and governance – to provide our community with access to world-class facilities, archives, and surveys

Governance by the community, for the community

AURA community-based governance



AURA employee-based management



How does "**AURA**" envision a future OIR System?

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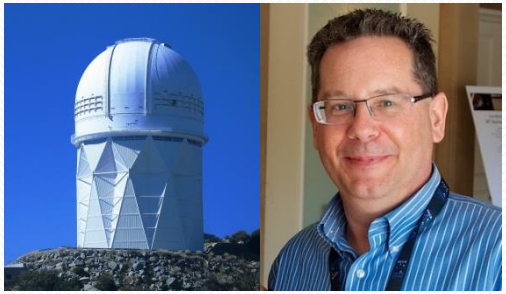
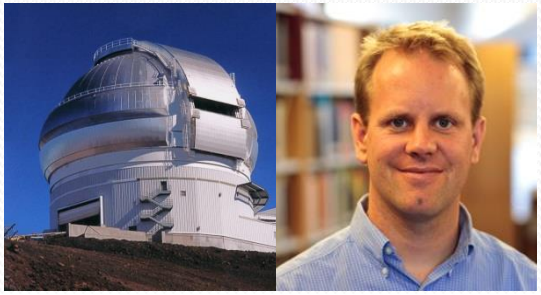
Existing non-AURA
OIR facilities

Future
OIR facilities
(inc. ELTs)

AURA vision is **community-led**

AURA vision is **center-led**





For example, NOAO-affiliated meetings

DECam Community Science Workshop, Tucson, AZ, March 11-13, 2015

Tools for Astronomical Big Data, Tucson, AZ, March 9-11, 2015

The Thirty Meter Telescope Science Forum, Tucson, AZ, July 17-19, 2014

Fifty years of wide field studies in the Southern Hemisphere: Resolved Stellar Populations …, LA Serena, Chile, May 6-9, 2013

Spectroscopy in the Era of LSST, Tucson, Arizona, April 11-12, 2013

Binary Black Holes & Dual AGN: A Workshop in Memory of David S. De Young, Tucson, Arizona, November 29-30, 2012

Gemini Science Meeting 2012, San Francisco, California July 17-20, 2012

The Great Andromeda Galaxy: A workshop to celebrate Martin Schwarzschild's Centennial, Princeton University, June 18-20, 2012

Highly Multiplexed Spectroscopy with BigBOSS on the Mayall : An NOAO Community Workshop, Tucson, AZ, September 13-14, 2011

Seeing the Big Picture: DECam Workshop, Tucson, AZ, August 18-19, 2011

IAU Symposium 283, Planetary Nebulae - An Eye to the Future, Puerto de la Cruz, Tenerife (Spain), 25-29 July 2011

First International Symposium of Science with the SOAR Telescope, Maresias Beach, Brazil, May 15-19, 2011

A Workshop on Massive Galaxies over Cosmic Time III, Tucson, AZ, November 8-10, 2010

Gemini Data Workshop, Tucson, AZ, July 19-22, 2010

50th Anniversary Symposia, Tucson, AZ: From First Light to Newborn Stars,, March 14-17, 2010;The Eventful Universe, March 17-20, 2010

Science with Adaptive Optics - A "Meeting Within at Meeting" at the Pasadena AAS Meeting, Pasadena, CA, June 7-11, 2009

Hotwiring the Transient Universe II, Santa Cruz, CA, April 26-30, 2009

Wild Stars in the Old West II, Tucson, AZ, March 15-19, 2009

Science with Giant Telescopes, Chicago, IL, June 15-18, 2008

The Dark Energy Survey, International Collaboration Meeting, La Serena, Chile, April 23-25, 2008

Hot-wiring the Transient Universe: A Joint VOEvent & HTN Workshop, Tucson, AZ, June 4-7, 2007

3rd Community Workshop on the Ground-Based O/IR System, Scottsdale, AZ, November 16-17 2006

Future Directions for Interferometry, Tucson, AZ, November 13-15, 2006

Belton Symposium: Journey Through the Solar System, Tucson, AZ, November 10-11, 2006

A Workshop on Massive Galaxies over Cosmic Time II, Tucson, AZ, November 1-3, 2006

Probing the Dark Universe with Subaru and Gemini, Waikoloa, Hawaii, November 7-9, 2005

Science with LSST and Other Large Surveys: Community Access and Utilization of Future Archives or What will LSST do for You? University of Washington, Seattle, WA, September 20-22, 2004

Building the System from the Ground Up: 2nd Community Workshop on the GB O/IR System, NOAO Workshop, Alexandria, VA, May 13 and 14, 2004

Observing Dark Energy, NOAO Workshop, Tucson, AZ, March 18-20, 2004

NOAO Workshop to coordinate a ground-based observing campaign of comet 9P/Tempel 1, Tucson, AZ, February 23, 2004

Astrobiology Graduate Conference, (sponsored by NASA, The University of Arizona, and NOAO), Tucson, AZ, January 7-10, 2004

Workshop on Scientific Requirements for Mitigation of Hazardous Comets and Asteroids, Hyatt in Arlington, VA, September 3-6, 2002

The First Workshop on the O/IR Ground-based System, Phoenix, AZ, October 27-28, 2000

AURA core principles

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Forefront innovations – in facilities, technology, and data science – **drive discovery** in astronomical sciences

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PEER-REVIEWED
NOT BASED ON INSTITUTION
COMPETITIVE
BEST SCIENCE

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TELESCOPE NIGHTS
DATA
ARCHIVES

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WE STUDY THE SKY

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AURA'S ASPIRATION = NSF'S GOAL = THIS COMMITTEE'S CHARGE

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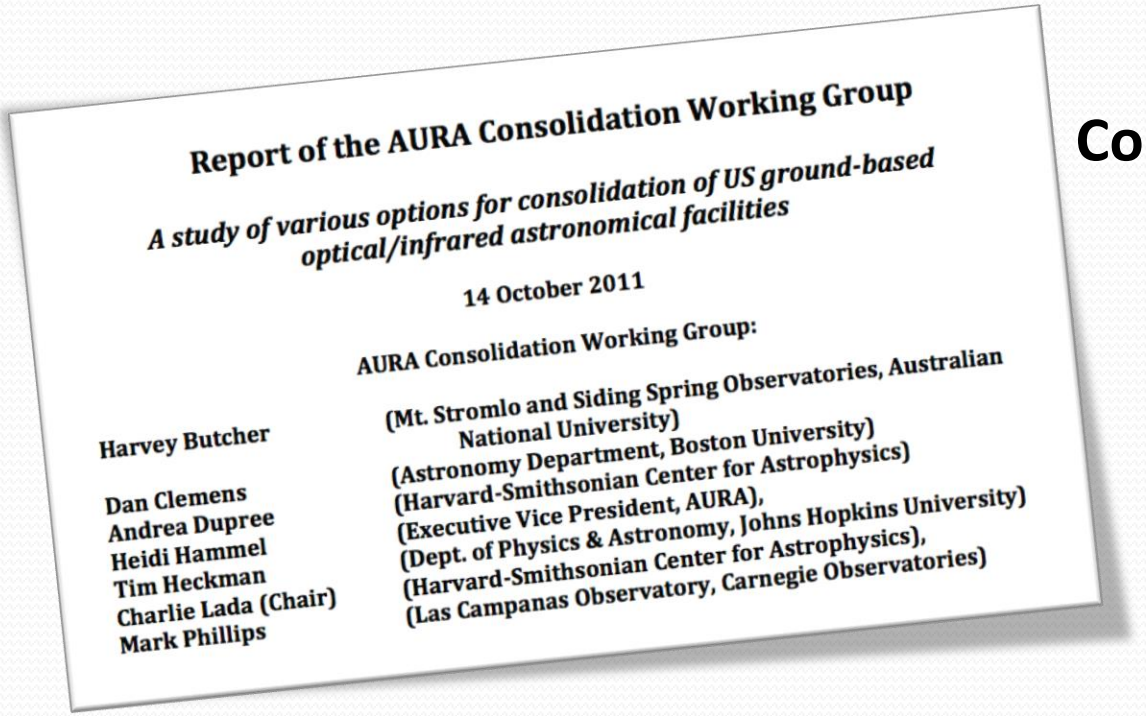
AURA RECOGNIZES THAT INNOVATION IS KEY TO DISCOVERY

Forefront innovations – in facilities, technology, and data science – **drive discovery** in astronomical sciences

Consolidation: to “c” or not to “c”



Report of the AURA Consolidation Working Group

A study of various options for consolidation of US ground-based optical/infrared astronomical facilities

14 October 2011

AURA Consolidation Working Group:

Harvey Butcher	**(Mt. Stromlo and Siding Spring Observatories, Australian National University)**
Dan Clemens	**(Astronomy Department, Boston University)**
Andrea Dupree	**(Harvard-Smithsonian Center for Astrophysics)**
Heidi Hammel	**(Executive Vice President, AURA),**
Tim Heckman	**(Dept. of Physics & Astronomy, Johns Hopkins University)**
Charlie Lada (Chair)	**(Harvard-Smithsonian Center for Astrophysics),**
Mark Phillips	**(Las Campanas Observatory, Carnegie Observatories)**

2011 AURA Consolidation Working Group examined three models

Pure Consolidation

Pure Corporate

Hybrid

each has pros and cons

caveat from preface: “… the working group recognized that **input from the international partners and the wider community is needed** to identify the most viable governance structures … ”

http://www.aura-astronomy.org/news/2011/ACWG_Report_Rev_Nov29_2011.pdf

Consolidation: to “c” or not to “c”

Little-known AURA datum #1 AURA **has** centralized the parts of NOAO and Gemini that had been identified for potential cost savings: Centralized Administrative Services and Human Resources

Little-known AURA datum #2 AURA’s centralization of administration services and HR **did** lead to cost savings

Additional AURA actions AURA is actively exploring mechanisms to enable cross-facility movement of scientists and engineers, though it is not clear there are cost savings to be gained

AURA vision for the future OIR System

Enable our community to effectively use "Big Data" and wide field surveys from our existing facilities: NOAO/DEC, NOAO/DESI, LSST, etc.

Evolve Gemini, NOAO, LSST, and other facilities to meet our US community's needs for access to the sky via a strong National Observatory system (MSIP inadequate? Innovate via the NSF grants programs?)

Engage with the enormous potential for synergies in the South, but also recognize the US community's need for access to the premier northern hemisphere site

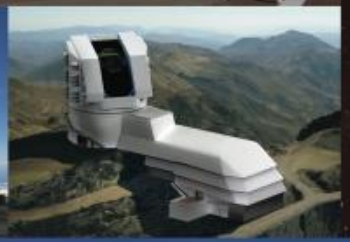
Establish merit-based opportunities for Extremely Large Telescopes

Educate the next generation of astronomers

ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY

aura-astronomy.org

AURA



THANK YOU FOR THE OPPORTUNITY TO SHARE AN “AURA” PERSPECTIVE