WELCOME to the 2010 AURA Observatory Users’ Meeting
Users’ Meeting Agenda

• **Morning**
  • Opening Remarks
  • Site & Infrastructure Updates
  • Admin & Facilities Report & Site Fees for FY2011

• **Lunch: Updates by Program**
  (A few words from each program)

• **Afternoon**
  • Lasers @ AURA
  • Long Range Planning (Briefly)
  • Closing Remarks
AURA Observatory in Chile

- Governed by the AURA-O Charter
- Leadership
  - Head of Mission (reports to AURA President)
  - Deputy & Legal Representative
- Advice & Coordination
  - Local Coordination meetings (shortest term)
  - Local Director meetings (intermediate term)
  - Annual Users Meeting (intermediate/long term)
  - Annual Program Directors Meeting (long term)
Relationships

Governance

AURA President

AURA Head of Mission

Charter

Implementation

NOAO-South

Admin & Facilities

Advice

Program Directors

Users Committee & Local Directors

Local Coordination
AURA-O Users Meeting

- Representatives from each Unit, as well as other “tenants” within the AURA Observatory may also participate in the AURA-O Users’ Meeting.
- They will meet annually (normally in the July-September timeframe) and will evaluate and suggest initiatives concerning the existing or future service demands of the Users’ community at large. This activity will include AURA-O wide functions involving houses, the campus, meal service, transportation, etc.
- Results from the Users’ Meeting will be advisory in nature. It is expected that the Users will recommend or promote actions, including infrastructure improvements. These recommendations will be reviewed by the Local Directors Committee and the Head of Mission for prioritization. The Head of Mission will forward these prioritized recommendations to NOAO for implementation.
AURA Corporate

• Update from Washington D.C.
  • Dick Malow
La Serena Infrastructure Updates
Entrances & Exits

- Cisternas Gate issues
  - Increasing traffic on road + traffic lights = dangerous exit
  - During day: Entrance only
  - During night: Entrance+Exit (only exit!)
    - Other closed: University requirement
  - Even entry dangerous = change gate configuration to allow vehicles to wait for gate out of traffic
Future: New Main Entrance?
New Facilities Planning: LSST
Mountain Facility Updates
AURA-O Infrastructure: 2009/2010 Activities

• Moderate projects:
  • **Pachón Dormitory Power Enhancement** (new transformer & power line)
    • ~$50K from CTIO, Gemini, & SOAR)
  • Additional 1550m of Guardrails
    • $75K from NSF, matched by $75K from CTIO, Gemini, & SOAR

• LARGE project:
  • **Phase 2 of Pachón Dorm**: 5 more rooms
  • AURA funded; ~$355,000 USD investment
  • Construction started Aug 15, 2009; to run through Feb/Mar 2010
  • Major impact: all Pachón dorms closed; all staff housed on Cerro Tololo for construction period
Pachón Dorm Construction

Completed January 2010
Planned Infrastructure Improvements

- **American Recovery & Renewal Act**
  - NOAO receives ARRA (“stimulus”) funding
  - Due to NOAO’s new responsibility for stewardship of the AURA-O facilities & infrastructure in Chile, a significant fraction of NOAO’s ARRA funding will be spent on AURA-O infrastructure

- **Infrastructure Investment Breakdown**
  - Tololo infrastructure: $567K
  - Pachón infrastructure: $508K
  - Shared mountain infrastructure: $550K
  - La Serena infrastructure: $140K
ARRA Infrastructure Plans

• Tololo Infrastructure
  • Dorm, Dining, & Houses repair: $480K
  • UPS System upgrade: $67K (upper platform only)

• Pachón Infrastructure
  • Dorm Emergency Generator: $58K
  • Kitchen & Dining facility extension: $450K

• Shared Mountain Facilities
  • Water system renovation: $450K $400K
  • Guardrail extension: $100K
  • Tololo Emergency Power Systems Repair ($150K)
Tololo Dorms & Dining

- Planned improvements include:
  - Heating system in all 3 buildings
    - Hopefully include solar option
  - Roof repair for all 3 buildings
  - Repair of damaged rooms in “Technicians”
  - Renovation of Technicians & 10U rooms
    - Improved quality of life for Tololo staff
  - Renovation of Dining Dorm
    - Both dining and dorm spaces
Pachon Dorms & Dining

Objectives:

- Integrate permanent Kitchen & Dining Room into dorm facility
  - Can handle increased loads (e.g., LSST)
- Provide general meeting room area
  - Away from dorm rooms
  - Flexible for multiple & changing use
LIST
1 service access
2 lockers / dressing room
3 service restroom
4 office
5 walkin freezer
6 walkin refrigerator
7 food storage
8 kitchen
9 dish washer room
10 dinning area
11 terrace
12 access
13 hall
14 elevator
15 ladder
16 restroom
17 restroom
18 free area

02 LEVEL -2.80 FLOOR PLAN  1:250
Pachon Schedule & Impacts

• **Schedule**
  - Design almost complete now
  - Bid process: Aug-Sep 2010
  - Construction start: Oct 2010 (~time change)
  - Construction finished: Mar-Apr 2011

• **Impact**
  - Pachon dorm reclosed Oct 2010-Mar 2011
  - Heavy load on Tololo dorms for that period
Emergency Power Systems

- **Pachon**: Need for Facilities Generator
  - Dorm power OUT during outages
  - Generator ordered; slowed by USGovt guidelines & local competition for resources

- **Tololo**: Frequency Convertor burnout and Emergency Generator issues
  - Frequency Convertor being rebuilt in Santiago
  - Generator ordered
Additional Infrastructure Work

- **Gas/Diesel Depot on Tololo**
  - Old and not meeting current regulations
  - Refurbishment underway

- **Road repairs**
  - Winter weather damaging cracked pavement
  - Lane and edge paint fading: safety hazard
  - Major initiative to repair, seal, and repaint paved roads done (Mar 2010)
  - Dirt road: SIGNIFICANT damage to repair due to storms this winter; repairs planned in Aug/Sept
And... Cars

Good ol’ days

ALSO: new staff transports (SUV), new utility trucks, &
new food refrigeration truck

Now

Soon
Internet Connectivity Update

• Current situation
  • 50Mbps shared by everyone

• Near future (before FY11)
  • 1Gbps shared by everyone
  • New partners: Campanas, LSST, NRAO
  • Supported also by NSF/OCI “AmLight”
  • Upgraded reliability with redundant routes
    • In La Serena
    • International links up both coasts, dual to East coast
Break
• Two phase Transition plan
  • Phase 1: “Merger”
    • Bring current operational and administrative structure inside NOAO
    • Perform a review of AOSS processes and culture
    • Timescale: thru September 30, 2009
  • Phase 2: “Full Integration”
    • Conversion to NOAO administrative systems
    • Definition and implementation of processes, merging existing NOAO-N processes with recommendations from AOSS review; together with thorough analysis and update of NSF compliance
    • Timescale: October 1, 2009 thru September 30, 2010 (FY2010); goal is completion before beginning FY2011
Users’ View

• FY2009 Closeout
  • No impact: AOSS policies and procedures in force
• FY2010
  • Stability first; intended to be cost neutral
  • Gradual changes in invoices and services as we convert to NOAO systems and implement review recommendations
• FY2011
  • New systems in place, evaluation of long-term changes
• FY2012
  • Gradual evolution over long term
AURA-O Rates FY2011

• Starting point:
  • Low inflation in FY2009, and low projections in FY2010
  • Most rates FROZEN for FY2010, despite increased labor costs
  • CONTINUED desire to provide stability for budget planning

• Reality
  • Inflation ramping up significantly in FY2010
  • Projections uncertain, many predict ~3.5% in FY2011

• Result:
  • Net costs up by 5.5% w/ retirements, 3.0% without
  • Shares & Census: up by base 3.0%
  • Per use: some frozen, some up
## AURA-O Rates FY2011

### FEES FOR FISCAL YEAR 2010

<table>
<thead>
<tr>
<th>Service</th>
<th>FY 2011</th>
<th>FY 2010</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-m Shares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tololo</td>
<td>CLP $77,208,938</td>
<td>CLP $74,960,134</td>
<td>per share</td>
</tr>
<tr>
<td>Pachon</td>
<td>CLP $78,211,644</td>
<td>CLP $75,933,635</td>
<td>per share</td>
</tr>
<tr>
<td>La Serena Based employee/ yr</td>
<td>CLP $579,850</td>
<td>CLP $562,961</td>
<td>per employee/yr</td>
</tr>
<tr>
<td>All Places All staff Census employee/ yr</td>
<td>CLP $1,692,311</td>
<td>CLP $1,643,020</td>
<td>per employee/yr</td>
</tr>
<tr>
<td>PPC census (non AURA Sites)</td>
<td>CLP $656,334</td>
<td>CLP $625,080</td>
<td>per employee/yr</td>
</tr>
</tbody>
</table>

**Per-use all sites**

<table>
<thead>
<tr>
<th>Service</th>
<th>FY 2011</th>
<th>FY 2010</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garage labor</td>
<td>CLP $11,941</td>
<td>CLP $11,372</td>
<td>per hour</td>
</tr>
<tr>
<td>Janitorial Services (La Serena)</td>
<td>CLP $12,280</td>
<td>CLP $12,280</td>
<td>per hour</td>
</tr>
<tr>
<td>Janitorial Services (Mntn)</td>
<td>CLP $10,209</td>
<td>CLP $10,009</td>
<td>per hour</td>
</tr>
<tr>
<td>Maintenance group labor (La Serena)</td>
<td>CLP $13,851</td>
<td>CLP $13,851</td>
<td>per hour</td>
</tr>
<tr>
<td>Motel, La serena</td>
<td>CLP $28,000</td>
<td>CLP $27,000</td>
<td>per night</td>
</tr>
<tr>
<td>Shuttle Carry All</td>
<td>CLP $30,000</td>
<td>CLP $28,280</td>
<td>per one-way ride</td>
</tr>
<tr>
<td>Water and Sewage La Serena</td>
<td>CLP $890</td>
<td>CLP $857</td>
<td>per cubic meter</td>
</tr>
</tbody>
</table>

**Per Use Mountain Facilities**

<table>
<thead>
<tr>
<th>Service</th>
<th>FY 2011</th>
<th>FY 2010</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodging, Pachon</td>
<td>CLP $13,260</td>
<td>CLP $13,000</td>
<td>per night</td>
</tr>
<tr>
<td>Lodging, Tololo</td>
<td>CLP $9,821</td>
<td>CLP $9,821</td>
<td>per meal</td>
</tr>
<tr>
<td>Pachon Meals</td>
<td>CLP $9,821</td>
<td>CLP $9,821</td>
<td>per meal</td>
</tr>
<tr>
<td>Tololo Meals</td>
<td>CLP $11,437</td>
<td>CLP $11,176</td>
<td>per cubic meter, includes transport</td>
</tr>
<tr>
<td>Water delivered to Pachon</td>
<td>CLP $6,791</td>
<td>CLP $6,530</td>
<td>per cubic meter</td>
</tr>
<tr>
<td>Water Tololo</td>
<td>CLP $6,791</td>
<td>CLP $6,530</td>
<td>per cubic meter</td>
</tr>
</tbody>
</table>
LUNCH

• And next…
People & Programs: Overview

- The BIG Three (for now)
  - Cerro Tololo Inter-American Observatory (CTIO), a division of NOAO
  - Gemini-South, part of Gemini Observatory
  - The SOuthern Astrophysical Research, aka SOAR, Telescope

- Ongoing programs
  - SMARTS
  - GONG
  - PROMPT
  - Univ. of Michigan Curtis Schmidt
  - SSI Airglow
New arrivals (recent and future)

- WHAM: Wisconsin H-alpha Imager
- ALO: Andes Lidar Observatory
- SARA: Southeastern Assoc. for Research in Astronomy (ex-Lowell telescope)
- Univ. of Chile: Robotic telescope
- LCOGTN: Las Cumbres Observatory Global Telescope Network

And, to join the “BIG Three”…
- **LSST**: the Large Synoptic Survey Telescope
End Lunch
Lasers @ AURA-O (I)

- In 2010 (either FY or CY) we are likely to see THREE laser systems begin operations
  - 1) ALO
  - 2) Gemini MCAO (~July 28)
  - 3) SOAR SAM* (~Aug-Oct 2010)
    - UV laser, may not be noticable

- Operation of these systems requires both external and internal AURA-O interfaces
Lasers @ AURA-O (II)

External interfaces

• Chilean Government & related
  • Lasers are considered hazardous to aircraft
    • We must shutter beams when aircraft are nearby
  • Solutions
    • Typical systems use “spotters”; Chilean authorities didn’t like this
    • AURA recently signed “Umbrella” agreement allowing access to air traffic control radar
    • AURA now entering detailed negotiations with air traffic agency and private firm for implementation
  • End point: air traffic control input into site-wide system for laser shuttering

• International issue
  • Satellite avoidance; coordination with U.S. Space Command
Lasers @ AURA-O (II)
Internal interfaces

- AURA-O site needs coordinated LTCS
  - Laser Traffic Control System
  - To be modeled after Mauna Kea system
  - Fundamental principles:
    - Laser beacons must not interfere with observations performed by other AURA-O telescopes
    - Non-laser projecting telescopes have “right of way” in pointing conflicts
- We are STARTING
  - Drafting policies
  - Discussions with stakeholders

Figure 2. Schematic representation of the LTCS implementation approach
Relationships

Governance

AURA President

AURA Head of Mission

Charter

Implementation

NOAO-South Admin & Facilities

Advice

Program Directors

Users Committee & Local Directors

Local Coordination

= Laser Working Group

Charter

Implementation

NOAO-South Admin & Facilities

Local Coordination

= Laser Working Group
More Details

• Hernan Bustos
  • Laser Operations in Chile

• Brooke Gregory
  • AURA Policies under development
  • Guideline:
    • Looking for minimum common policy
    • Programs can and should go beyond requirements for safety and operational stability
Long(er) Range Planning

- Need to take longer-term view of the health and development of the site
  - Identify long-lead, expensive replacements
  - Identify key future investments
  - Identify sites for future programs/projects
    - Cerro Tololo? Cerro Pachon?
    - Cerro Morado??
- Identify funding for all of the above
  - Context: Gemini long range planning
  - Context: Decadal Survey & LSST planning
Ongoing Communication

• Idea: WEB PAGES
  • PLONE system: user modifiable content
    • Under development
  • Twitter feed for road conditions
    • NOAOSouth