Site Protection efforts at AURA Observatory in Chile
Site Protection Efforts at AURA Observatory in Chile

1. Outstanding Sites
2. Evolution of Threats & Protections
3. Education & Outreach
4. Broadening Recognition
Outstanding Sites
Visionary Promoter of Chilean Sites:
Director Frederico Rutllant
Chilean Sites

- Natural Conditions
  - High mountains
  - Dry Northern Desert
  - Excellent weather patterns
  - Smooth flow of air off sea

- Additional factors
  - Good infrastructure
  - Strong govt support
Cerro Tololo site
Selected in November 1962
Immediate Environment

- La Serena
- Coquimbo
- Vicuña
- Andacollo
- Ovalle

Distances:
- 57 km between La Serena and Coquimbo
- 15 km between Cerro Tololo and Cerro Pachón
Evolution of Threats And Protections
Northern Chile rich in copper, gold, and other valuable minerals

Ownership of land does not include mining rights

Initial response: AURA Mining Company!

Chilean Government support:
  – Site declared “Area of Scientific Interest”
  – No mining in the area without explicit approval of President of Chile
  – Requires constant vigilance, but works well
Site Protection 1990s onward:
+ Threats from Lighting, Development

• 1990s brought rapid development to the region: growing cities, more lights
  – Malcolm Smith returned to La Serena in 1993 as Director of Observatory; recognized the threat of lighting
  – Led AURA team in understanding threat (basic studies modeling growth) and opened discussions with Chilean authorities
Partnering with Government: Regulations and Support

• Worked with Chilean government to include lighting in creation of new pollution legislation
• Led to first “Norma” (regulation) in 1998
  – Decreto Supremo 686
• Established OPCC
  – Oficina de Protección de la Calidad de los Cielos del Norte de Chile
  – Strategy: emphasize education and support, not enforcement and sanctions
  – Led the successful implementation of DS686
Informar a los medios de comunicación...

(Fórmula transitoria para evitar que las luminarias de la Avenida del Mar afecten al observatorio de El Tololo).
Education & Outreach
Multifaceted Educational Initiatives

• NOAO/CTIO: emphasis on teacher training
  – Multiplicative effect of one teacher touching hundreds to thousands of students
  – Classroom Kits: Galileoscopes (IYA), Dark Sky Awareness kits, Quality of Light kits (IYL), etc.

• Gemini: Massive public events
  – AstroDay, Viaje al Universo = sharing the wonders with thousands

• LSST: Citizen Science program
  – Scientific projects with public participation; classification of galaxies & variables
¡Sal y observa el cielo nocturno!

Comprométe a personas de todo el mundo a observar el cielo nocturno.

Alienta a los estudiantes y familias a participar de la ciencia ciudadana, aprendiendo de forma práctica.

Reúne información de la polución lumínica desde una perspectiva mundial para monitorear el brillo en los cielos y sus efectos.

¿Puedes ver las estrellas?

2015

Enero del 11 al 20
Febrero del 9 al 18
Marzo del 11 al 20
Abril del 9 al 18
Mayo del 9 al 18
Junio del 8 al 17
Julio del 7 al 16
Agosto del 5 al 14
Septiembre del 3 al 12
Octubre del 3 al 12
Noviembre del 2 al 11
Diciembre del 2 al 11

EL PLANETA DE NOCHE

WWW.GLOBEATNIGHT.ORG
Partnering with Community: The First Municipal Observatory

Cerro Mamalluca, In Vicuña

Now regularly OVERsubscribed with tourist demand
And the second, and third, and...
...Y la idea es aprovechar el boom de observatorios en la zona y unirlos con puentes; así generamos más empleos en obras públicas y en turismo.
Partnering with Community: Growth of Astro-tourism

• Hotels with telescopes and nightly tours of the sky
• Nighttime horseback rides with star guides
• Restaurants with brochures of nighttime activities in the valley
• Hotels with “dome” rooms, sleep comfortably under the stars
Broadening Recognition
Sanctuaries, Reserves, & World Heritage

• Path forward:
  – enhance protection
  – broaden impact
  – reinforce community commitment & ownership

• Steps:
  – Local impact: IDA Dark Sky Places
  – National: National Monument/Nature Reserve
  – International: World Heritage
Over 50 years protecting the site,
Over 20 years protecting the skies of northern Chile
“Lift up your face, child, and receive the stars. When you first look, they all pierce and freeze you, And then the sky begins to sway like a cradle they’re rocking, and you give yourself up wholly to be carried away, away.”

Gabriela Mistral, *Carro del Cielo*