



Site Protection efforts at AURA Observatory in Chile





Site Protection Efforts at AURA Observatory in Chile

Contenidos

1. Outstanding Sites
2. Evolution of Threats & Protections
3. Education & Outreach
4. Broadening Recognition

Outstanding Sites

Chile

Visionary Promoter of Chilean Sites: Director Frederico Rutllant



Chilean Sites

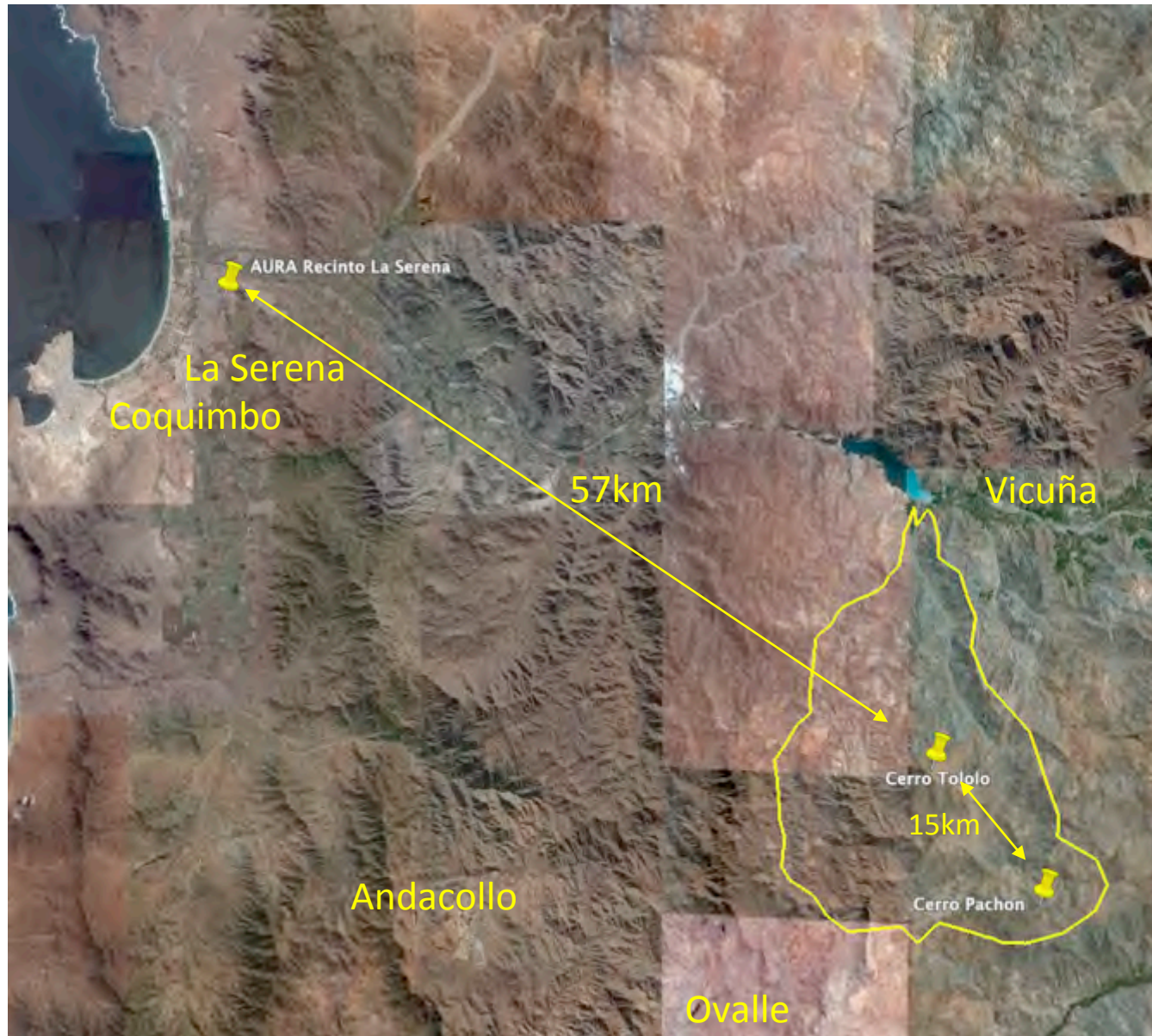
- Natural Conditions
 - High mountains
 - Dry Northern Desert
 - Excellent weather patterns
 - Smooth flow of air off sea
- Additional factors
 - Good infrastructure
 - Strong govt support



Cerro Tololo site Selected in November 1962



Immediate Environment



Evolution of Threats And Protections

Chile

Site Protection 1960s – 1990s: Threat of Mining

- 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

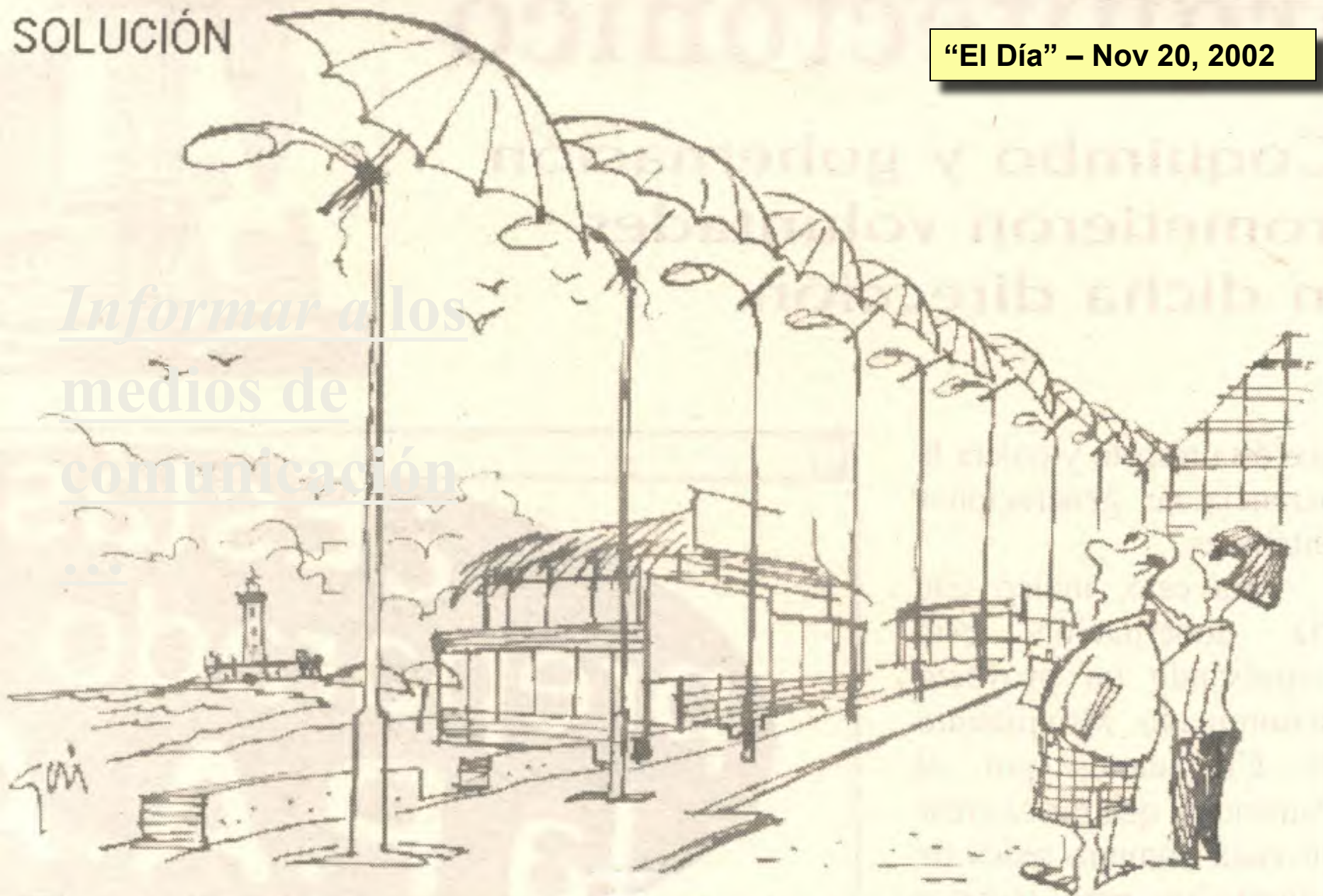
Partnering with Government: Regulations and Support

- 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

SOLUCIÓN

“El Día” – Nov 20, 2002

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

Chile

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





EL PLANETA DE NOCHE

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

WWW.GLOBEATNIGHT.ORG

¡Sal y observa el cielo nocturno!

Compromete 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 contaminación lumínica desde una perspectiva mundial para monitorear el brillo en los cielos y sus efectos.

¿Puedes ver las estrellas?



Partnering with Community: The First Municipal Observatory



Cerro Mamalluca, In Vicuña

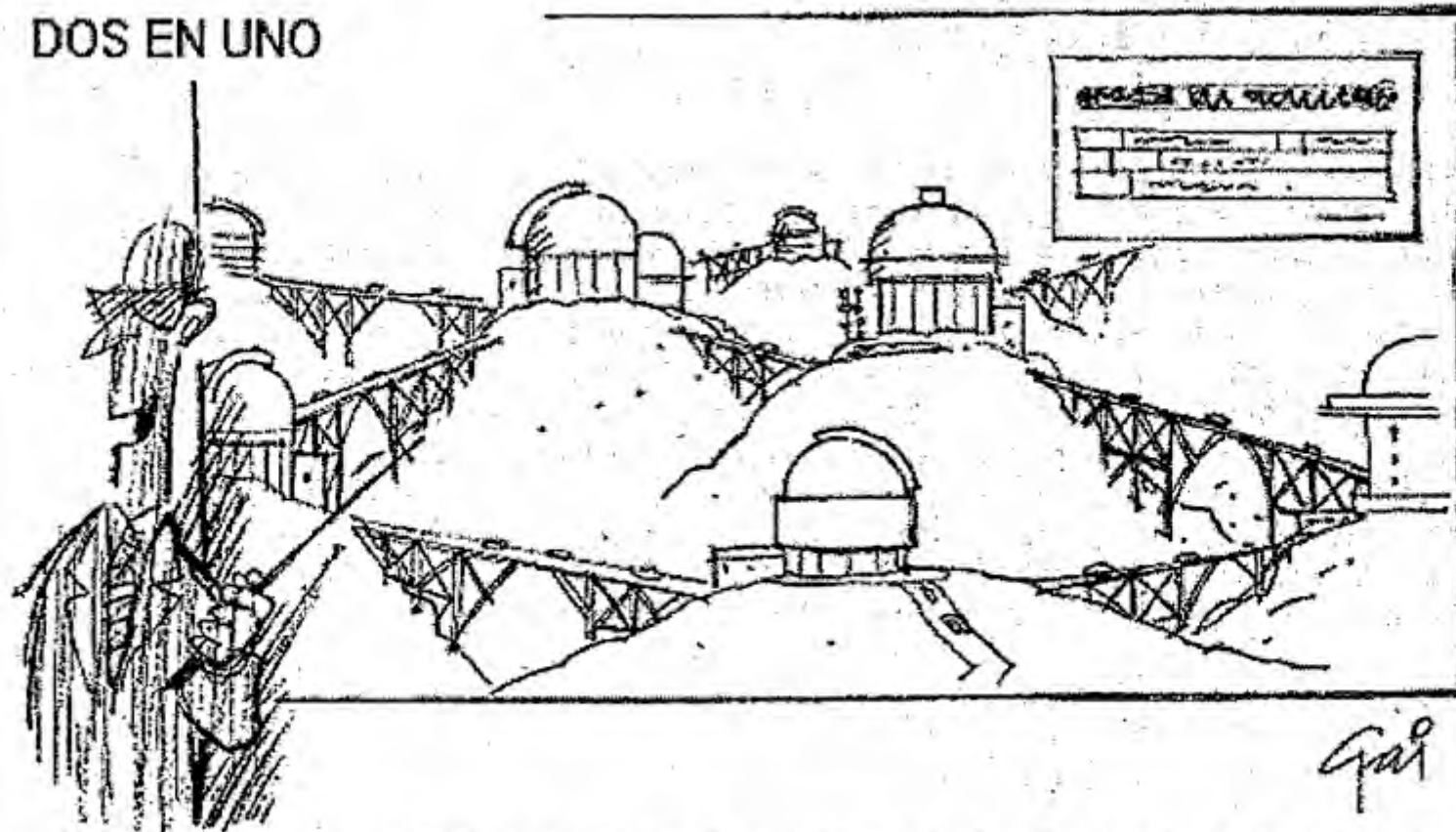
*Now regularly
OVERsubscribed
with tourist
demand*



And the second, and third, and...



DOS EN UNO



- ...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

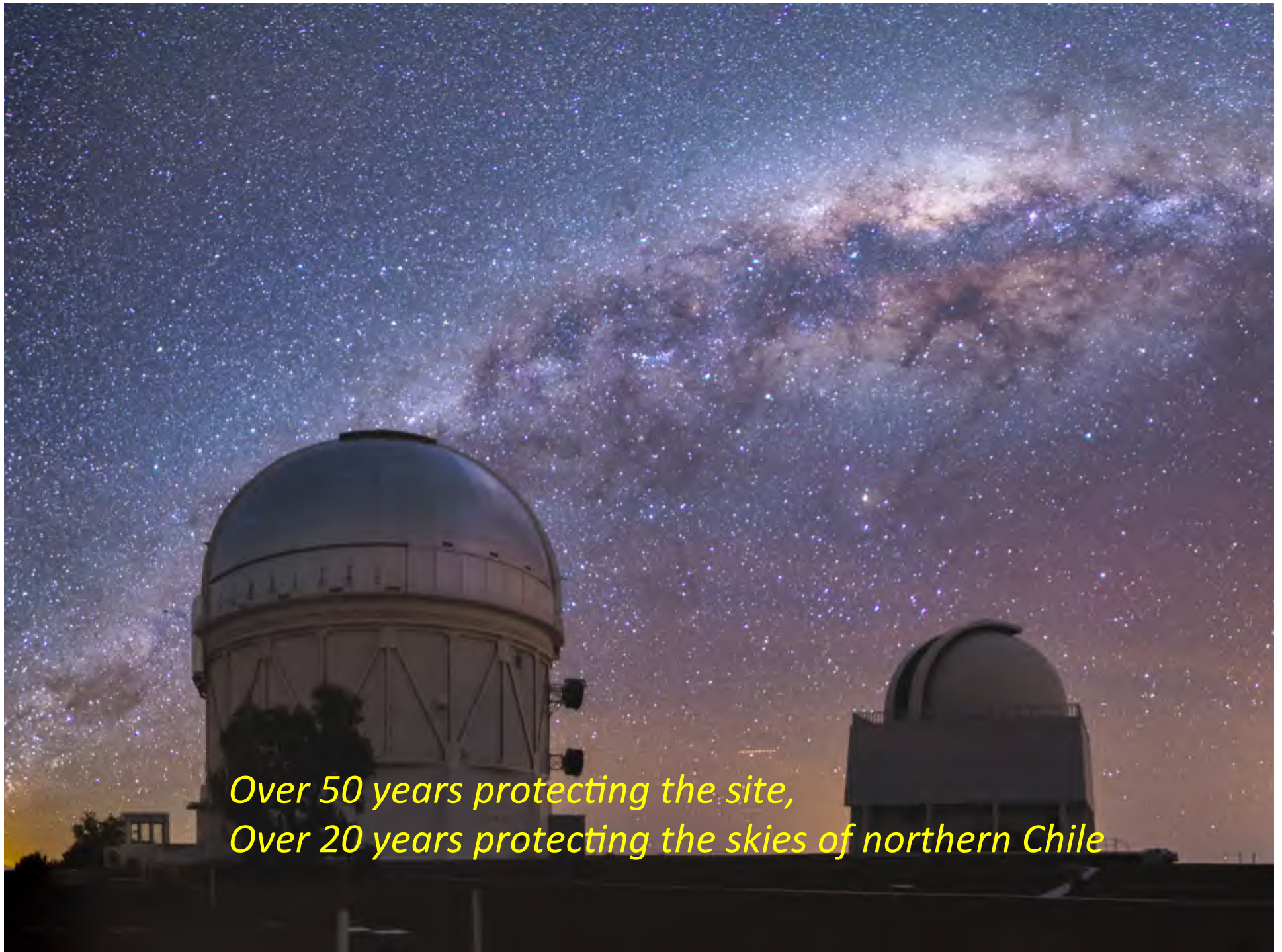
Chile

Sanctuaries, Reserves, & World Heritage

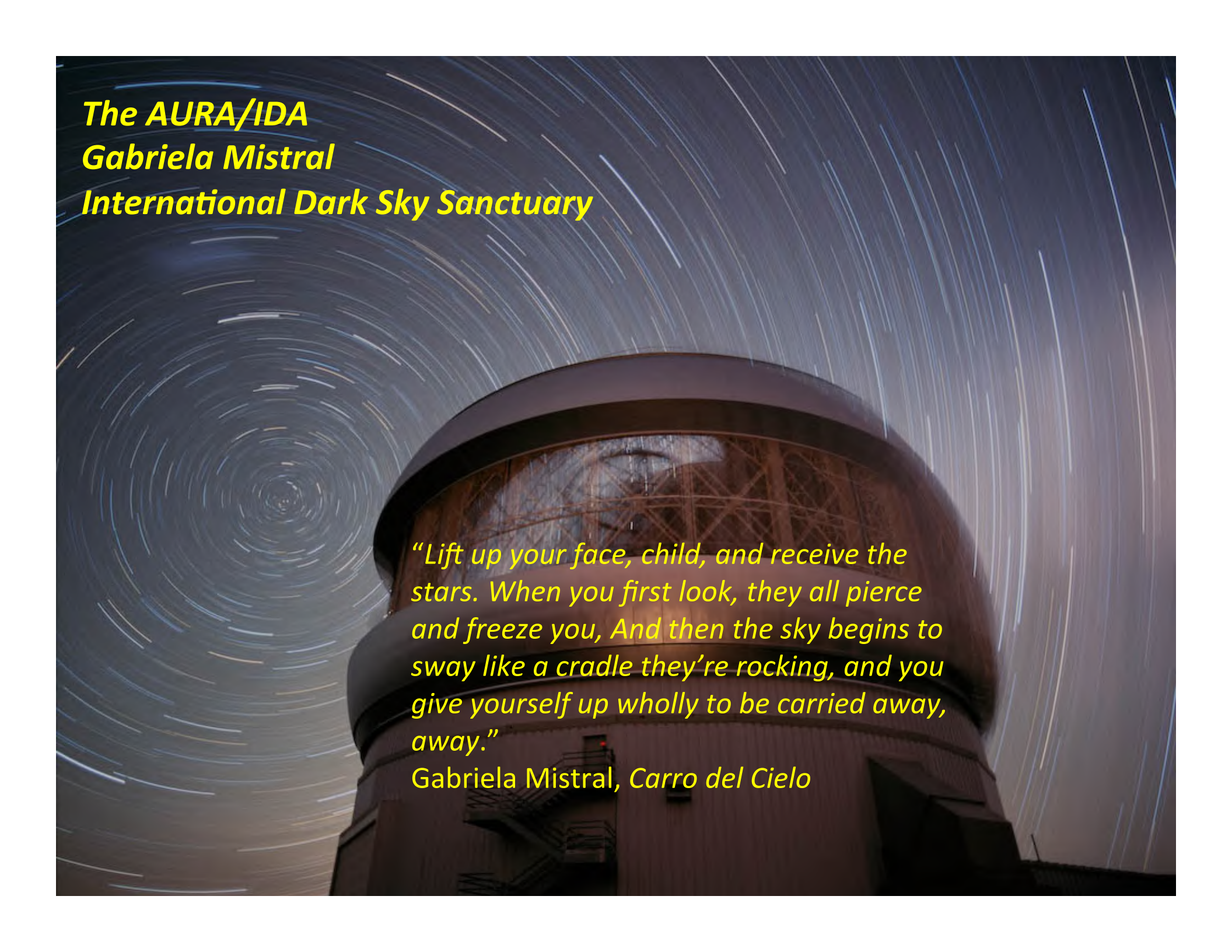


- Path forward:
 - enhance protection
 - broaden impact
 - reinforce community commitment & ownership
- Steps:
 - Local impact: IDA Dark Sky Places
 - National: National Monument/Nature Reserve
 - International: World Heritage





*Over 50 years protecting the site,
Over 20 years protecting the skies of northern Chile*



***The AURA/IDA
Gabriela Mistral
International Dark Sky Sanctuary***

“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