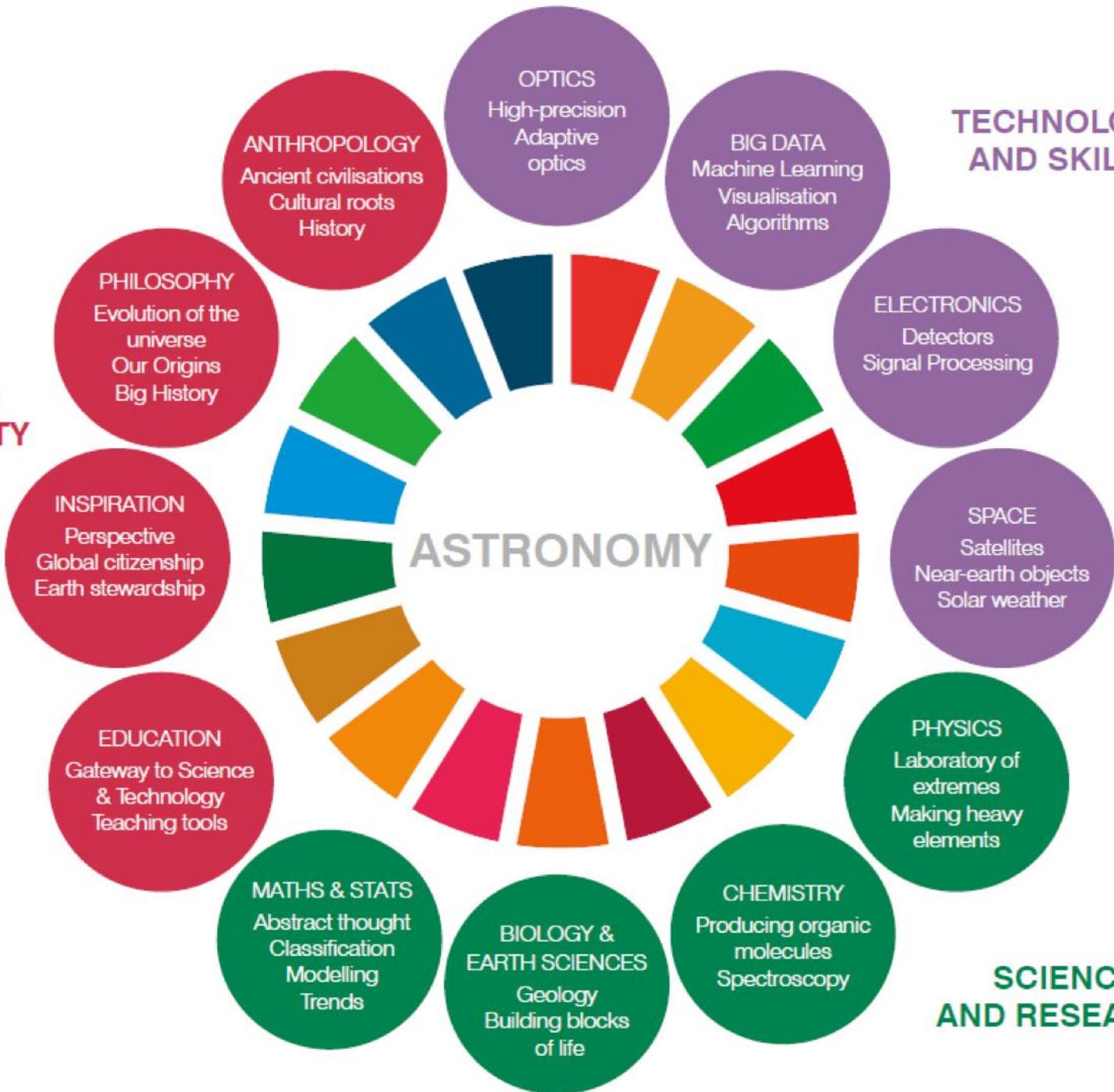




**ASTRONOMY and SPACE**  
for  
**DEVELOPMENT**

**CULTURE AND SOCIETY**



**TECHNOLOGY AND SKILLS**

**SCIENCE AND RESEARCH**

# The UN Sustainable Development Goals





In partnership with



# About IYBSSD 2022

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## Basic sciences are the sine qua non for sustainable development

**Agenda 2030** for Sustainable Development is the ambitious program that the Member States of the United Nations have agreed on to ensure a balanced, sustainable and inclusive development of the planet.

**Basic sciences** have an important contribution to make to the implementation of this program. They provide the essential means to meet crucial challenges such as universal access to food, energy, health coverage and communication technologies. They enable us to understand the impact of the currently nearly 8 billion people on the planet and to act to limit, and sometimes even to reduce it: depletion of the ozone layer, climate change, depletion of natural resources, extinction of living species.

***Basic sciences provide the essential means to meet crucial challenges such as universal access to food, energy, health coverage and communication technologies.***

**Michel Spiro, President of IUPA**



# OAD Regional Offices

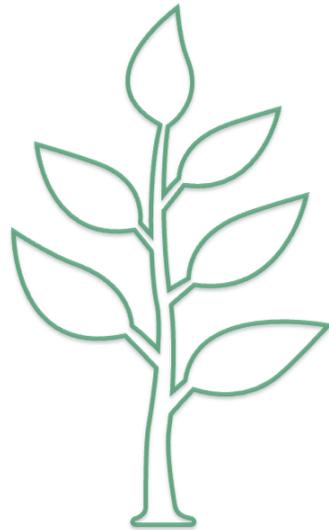
- ❖ Founded in 2011
- ❖ Cape Town, South Africa
- ❖ Equal partnership between IAU & NRF
- ❖ Ethos: [humility](#)
- ❖ “Astronomy for a better world”



# APPROACHES

## Grassroots projects

- Grow out of community needs
- Annual call for proposals
- Seed funding



[www.astro4dev.org/cfp](http://www.astro4dev.org/cfp)

# APPROACHES

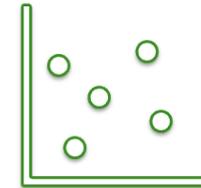
## Flagship projects



Astronomy to  
stimulate  
economies



Astronomy for  
diplomacy



Astronomy  
knowledge &  
skills for  
Development

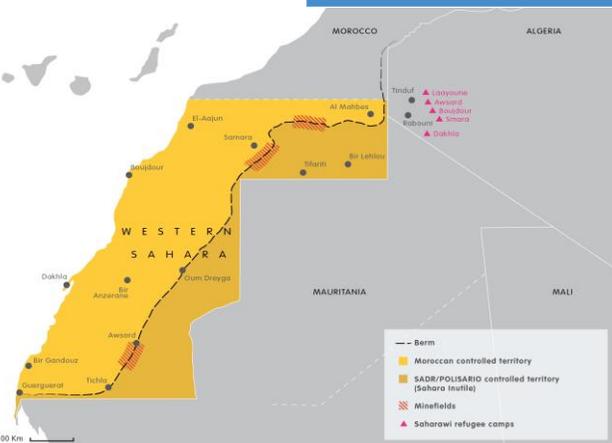
# The Amanar project, a refuge in the stars



# Context

- ★ Population in longest refugee situation in the world.
- ★ The Sahrawi refugees are separated from their families and their country is divided (2/3s are invaded).
- ★ Waiting in a situation that is both temporal and permanent since the 70s

Five refugee camps at the *Hamada*



## Challenges

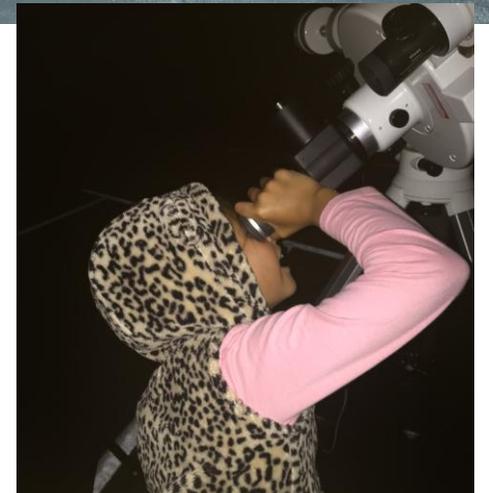
1. Rely on humanitarian aid
2. Water, fresh food and medicines supplies
3. Small trade/economy
4. Very hard conditions in the camps
5. Very few opportunities for the youth: education only until secondary level, no employment
6. Mental Health issues: high rates of depression and frustration
7. Feeling of abandonment and isolation



**200.000 refugees, 40.000 children and youth**

# Activities with Sahrawi children and youth

- ★ Inspire youth through the wonders of the Universe and the vastness of the Night Sky.
- ★ Memorable and fun activities. Dynamic, participatory.
- ★ **Promote peace and mutual understanding:** bringing Spanish and Sahrawi children together under the same sky.



# Activities in the camps

- ★ Hands-on, minds-on, hearts-on workshops.
- ★ Golden Record activity:
  - ❖ For a moment, they imagined they were traveling far away to meet another civilization.
  - ❖ Cope with negative feelings due to extreme situations.
  - ❖ Realize their own culture is relevant and worthy of recognition.



# Teachers and Schools

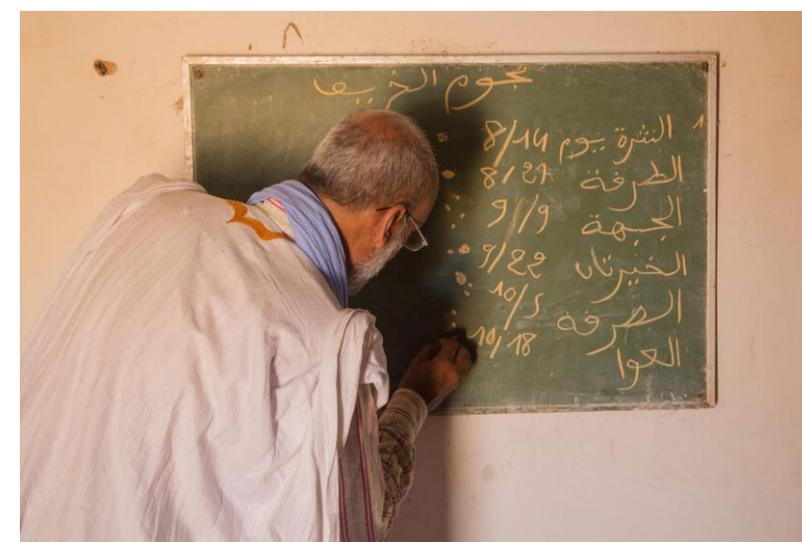
- ★ Support Sahrawi teachers through continuous workshops and training: innovative teaching/learning approaches (IBL)
- ★ Donation of material to schools: telescopes, interferometers, astronomy books, magazines, posters...



Schools + centres	6
Children and youth	635
Teachers	83
General public	150
<b>Total public</b>	<b>868</b>

# Empower the community

- ★ Ethnoastronomy research: stipends for 3 young and 2 senior Sahrawis researchers
- ★ Preserve their traditional knowledge of the sky, as part of their cultural heritage, their identity.



## Summer (Al saif, الصيف) stars

- Summer starts with **Al Natah (النطح)** (Ram's horn) Sheratan or Beta Arietis  
15/5 according to two of the informants, 30/5 to other (she did not specified which star)

Al Butain (28/5)  
Zuraia (10/6)  
Dabaran (23/6)  
El Hagga (22/6)  
El Hanna (5/7)  
Deraan (1/8)



## Seasons in the desert

A year of 365 days has:

- 28 stars, observed the heliacal rising
- 4 seasons (90, 91 or 92 days each) based on periods of rain and drought
  - Al Saif: 92 days, 30/5 to 29/8
  - Al Jarif: 92 days, 30/8 to 29/11
  - Al Chitaa: 90 days, 30/11 to 27/2
  - Al Tifeski: 91 days, 28/ to 29/5
- 7 stars per season
- 13 days between each one (per month)



Astronomy for

Mental Health

Best practices &  
resources



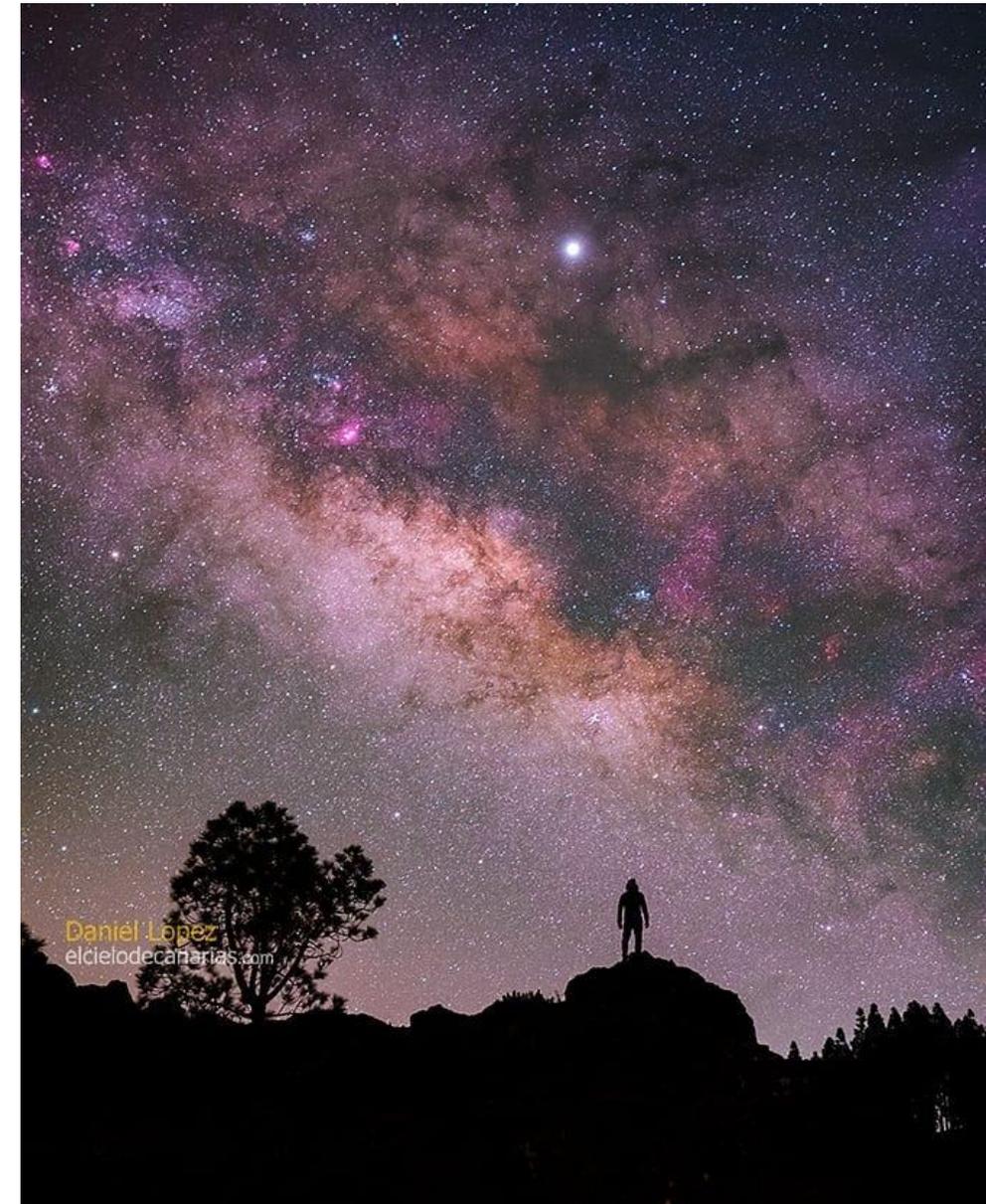
# Astronomy's Potential for Mental Health

- ★ The contemplation of starry sky, the Moon, the planets...generates a feeling of *AWE*.
- ★ Combined with benefits of being in a natural environment (Dark Nature).
- ★ Increase of positive emotions and attitudes → essential for mental well-being.



# Astronomy's Potential for Mental Health

- ★ *Awe* is an emotional response to grand stimuli that transcend one's accustomed frame of reference.
- ★ It involves feelings of wonder and amazement when perceiving a part of reality greater than oneself.
- ★ Sense of being part of something larger —> a **shift from personal concerns** to collective thought, prosocial values: collaboration and cooperation
- ★ Improve their well-being and strengthen their **self-esteem, empathy**, associated with mental health.



# Restorative effects of Astronomy

- ★ Positive benefits on mental health and can empower individuals and communities afflicted by deep trauma or by psychological symptoms, temporarily escaping their struggles.
- ★ Astronomy can help strengthen self-esteem, resilience and engagement in the community. These three aspects are all essential for mental welfare.



- ★ Sky becomes a free land without limitations, borders, curfews, walls. Open to wander around, to seize, to play, to dream.
- ★ It changes our perspective from self-interest in favor of other's well-being —> global citizenship (Pale Blue Dot approach).

# Astronomy For All (Spain)

- ★ The “Guillermo and Alicia” Foundation is a Spanish non-profit organization for the care of elderly people, in their physical, mental and social dimensions.
- ★ Series of **talks about Astronomy** with the goal of **inspiring and motivating** the elders to get interested in the new scientific advances.
- ★ Also alleviate their **stress related to the Covid-19** pandemic, taking their minds off the fear of getting infected.
- ★ Collaboration with the Spanish Astronomical Society (SEA).

