ASTRONOMY FOR A BETTER WORLD:

From Stars to Sustainable Solutions

Exploring the work of the IAU Office of Astronomy for Development

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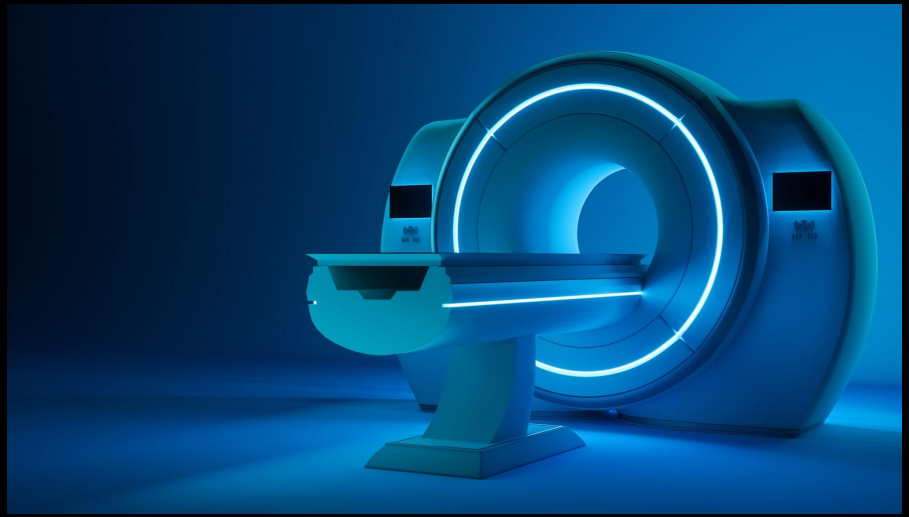
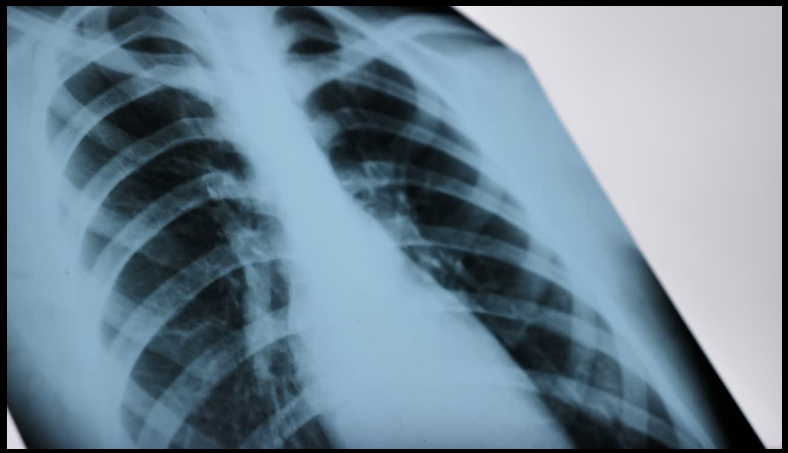
INTERNATIONAL ASTRONOMICAL UNION | OFFICE OF ASTRONOMY FOR DEVELOPMENT

Technological Spin-off of Physics



Microwave ovens, originally derived from radar research during World War II, and MRI machines, which apply principles of nuclear magnetic resonance to visualise internal body structures non-invasively.

Technological Spin-off of Astronomy

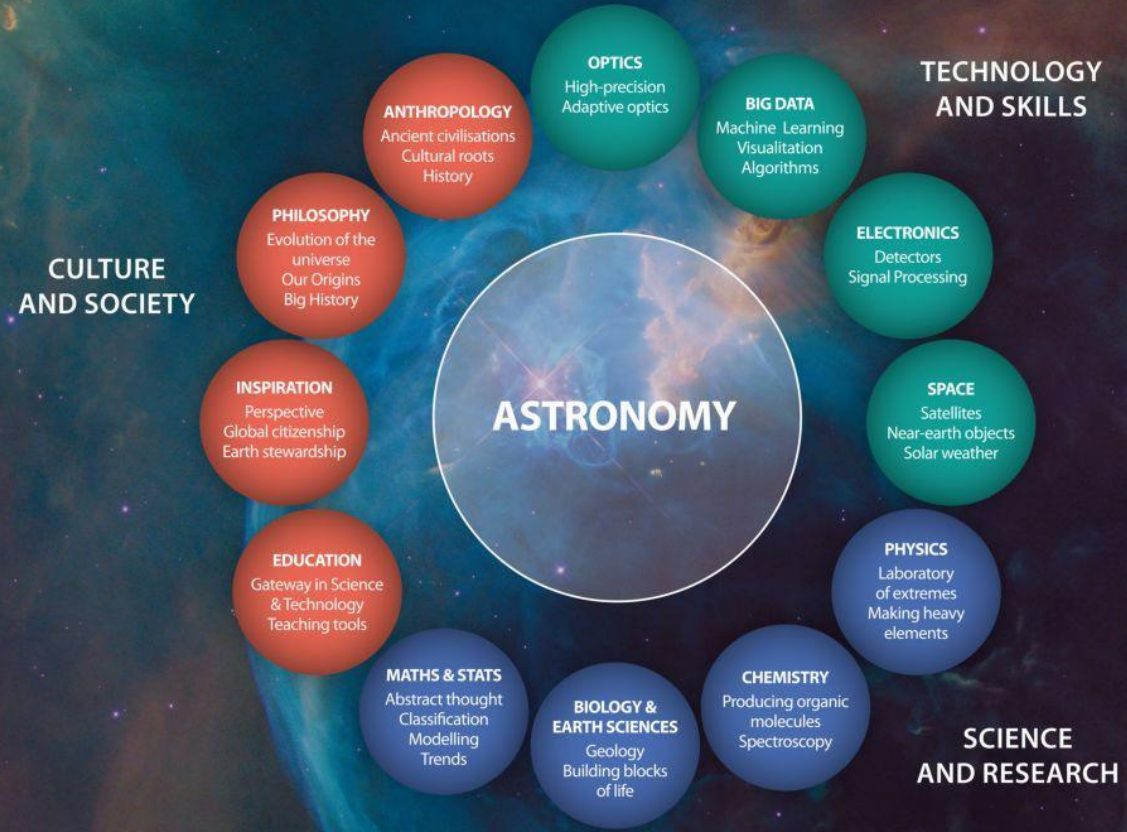


Charged-coupled devices (CCDs), initially developed for capturing faint celestial light, now underpin digital cameras and medical imaging systems such as X-ray and MRI machines

Technological Spin-off of Astronomy

Radio astronomy signal-processing innovations have influenced Wi-Fi and radar technologies

Astronomy for a Better World!



The International Astronomical Union

Mission: to promote and safeguard the science of astronomy in all its aspects, including research, communication, education and development, through international cooperation.

- **13 000 Professional Astronomers Members**
- **85 Member Countries**

iau.org

The IAU

IAU STRATEGIC GOALS 2020–2030

Goal 1

The IAU leads the worldwide coordination of astronomy and the fostering of communication and dissemination of astronomical knowledge among professional astronomers.

Goal 2

The IAU promotes the inclusive advancement of the field of astronomy in every country.

Goal 3

The IAU promotes the use of astronomy as a tool for development in every country.

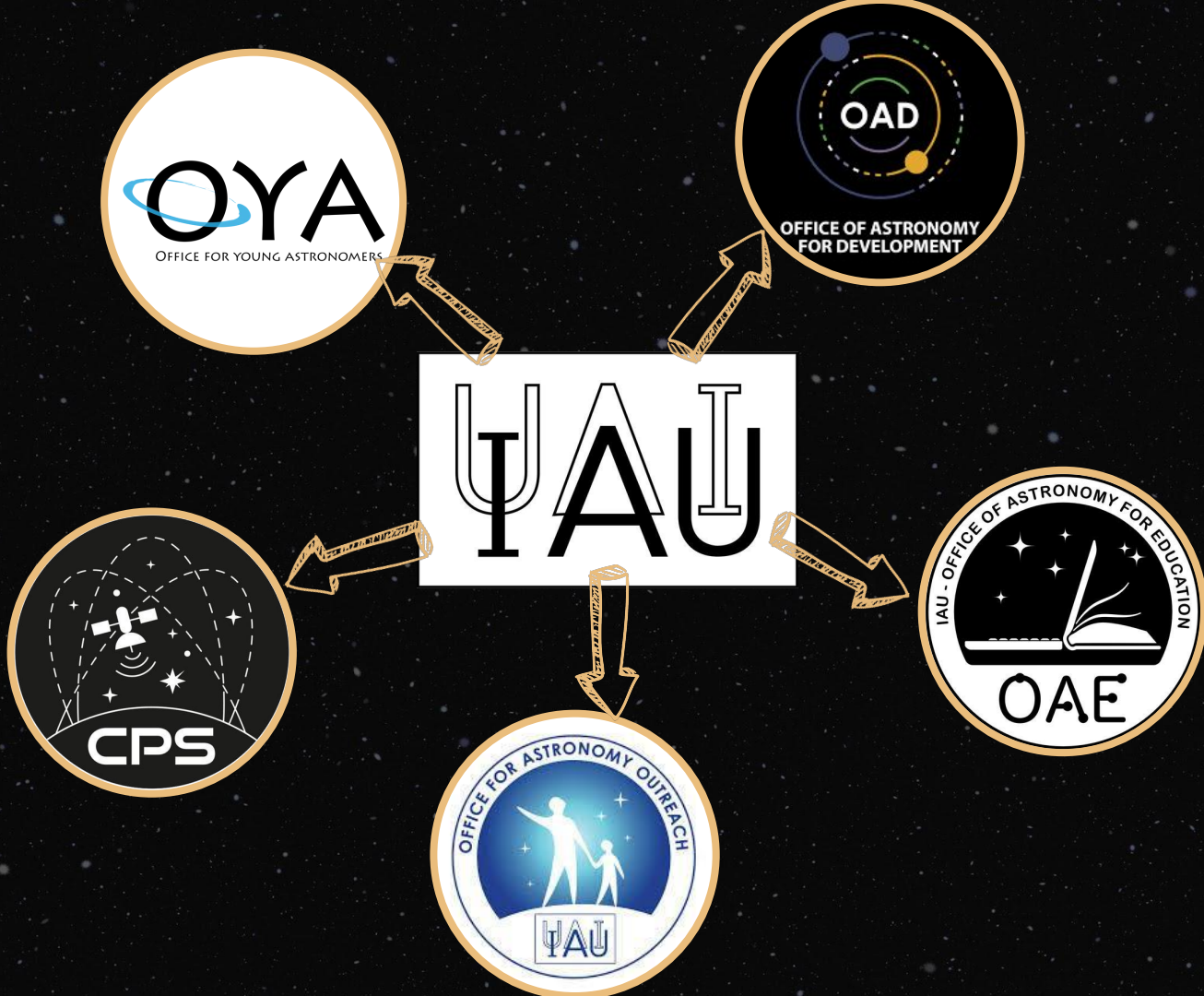
Goal 4

The IAU engages the public in astronomy through access to astronomical information and communication of the science of astronomy.

Goal 5

The IAU stimulates the use of astronomy for teaching and education at school level.

THE IAU OFFICES AND CENTRE



The OAD

OAD

OFFICE OF ASTRONOMY
FOR DEVELOPMENT

science, technology & innovation
Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

IAU

NRF National Research Foundation | SAAO South African Astronomical Observatory

Vision and Mandate

MEET OUR TEAM

Nuclear Physics

Kevin Govender

Director

Astrophysics

Dr Charles Takalana

Deputy Director

Admin & Events Management

Nuhaah Solomon

Office Manager

MEET OUR TEAM

Engineering & Space Science

Ramasamy Venugopal

Operations Manager

Particle Physics

Dr Joyful Mdhluli

Flagship Coordinator

Social Work

Dominic Vertue

Astronomy for Mental Health Project Leader

Commerce & Economics

Azasiwe Mancwatela

Monitoring and Evaluation

MEET OUR TEAM

MPhil in Science and Technology Studies

Duduzile Kubheka

BITDN Project Coordinator

International Relations

Moleboge Lekoloane

Stakeholder Engagement Officer

Astronomy and Astrophysics

Danielle Naidoo

Education, Outreach and Multimedia Officer


EUROPE
SOUTH WEST AND CENTRAL ASIA
PORTUGUESE LANGUAGE
NORTH AMERICA
EAST ASIA AND CHINESE LANGUAGE
ARAB WORLD AND ARABIC LANGUAGE
SOUTH EAST ASIA
WEST AFRICA
EAST AFRICA
ANDEAN REGION
SOUTHERN AFRICA
MAP
REGIONAL OFFICES
Regional Nodes and Language Expertise Centres (ROAD/LOAD) are offices based around the world with similar objectives as the OAD but with regional focus. These offices work closely with the OAD in order to implement the IAU Strategic Plan. "Regions" which they focus on could be geographical or cultural. As of mid 2020, there are 11 Regional Offices around the world. Below are a selection of their activities in this period. Visit the OAD website for the entire list of activities.
Global Reach
REGIONAL OFFICE/ LANGUAGE CENTER

Global Footprint and Impact

01 **236 projects**
Supported

02 **1636 proposals**
Received

03 **13 call for proposals**
Implemented

112 countries 04
Covered

2 Million people 05
Reached

1.4 Million Euros 06
Invested

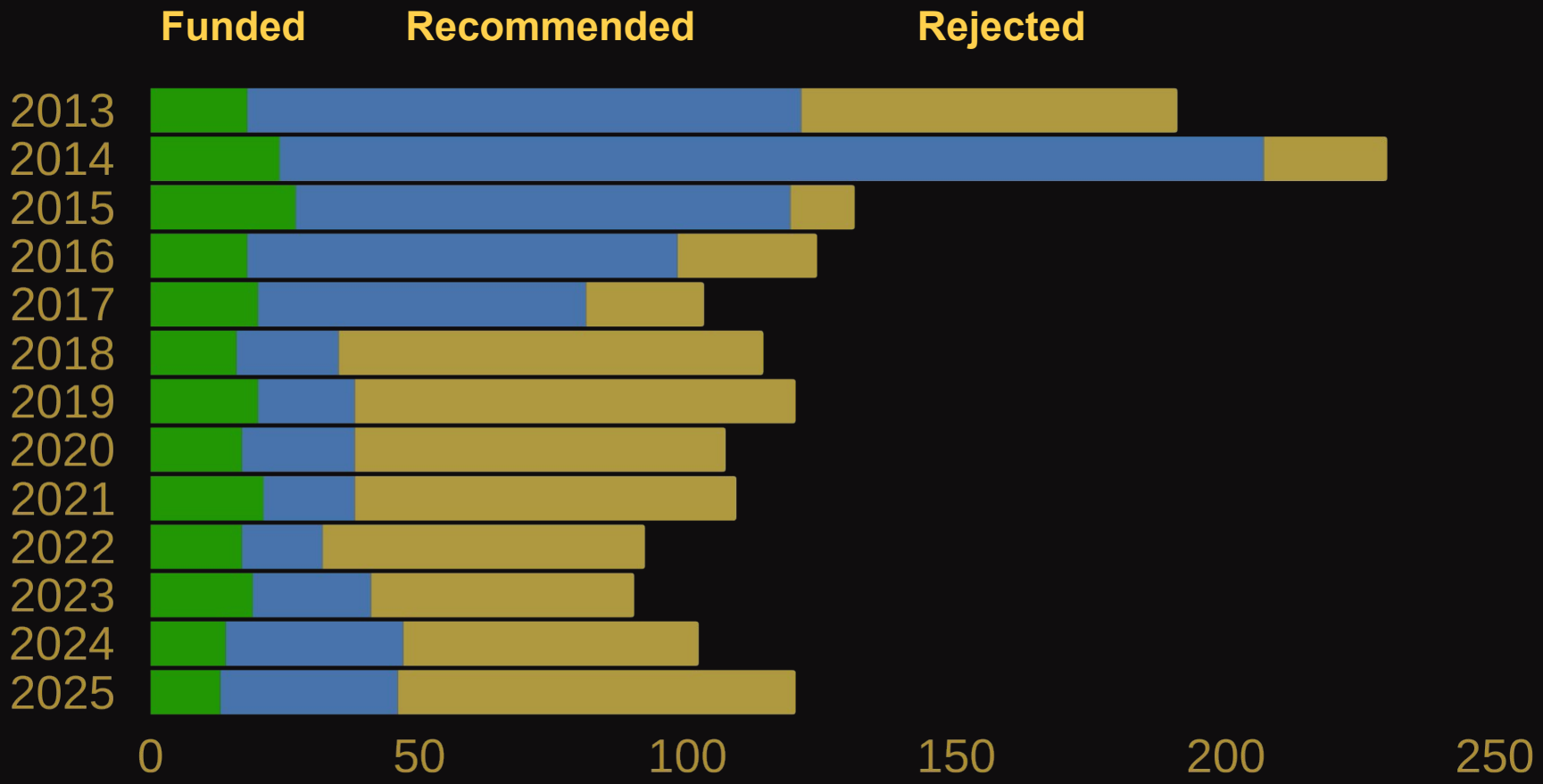
236 projects

112 Countries

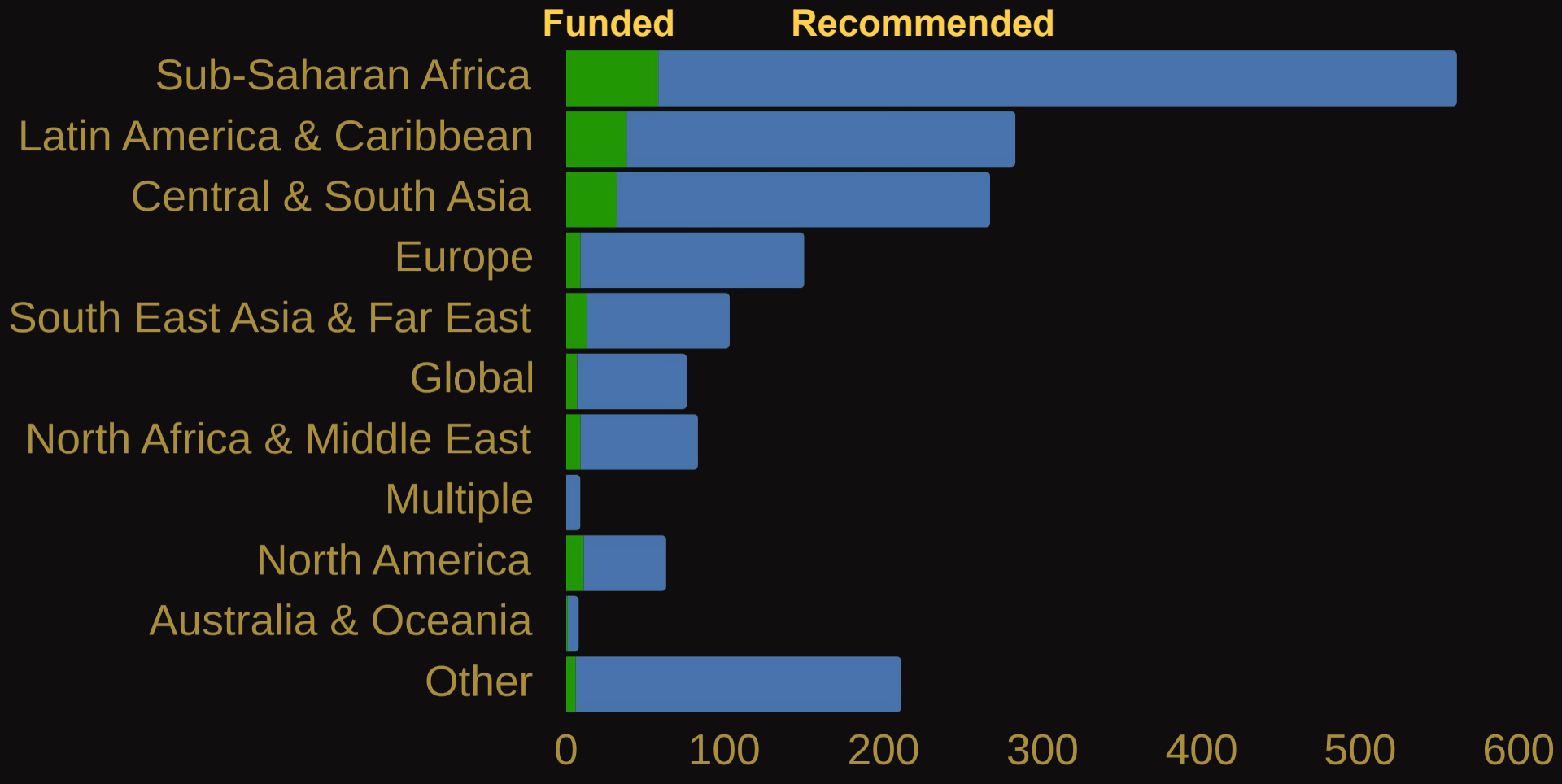
5 Continents

Global Footprint and Impact

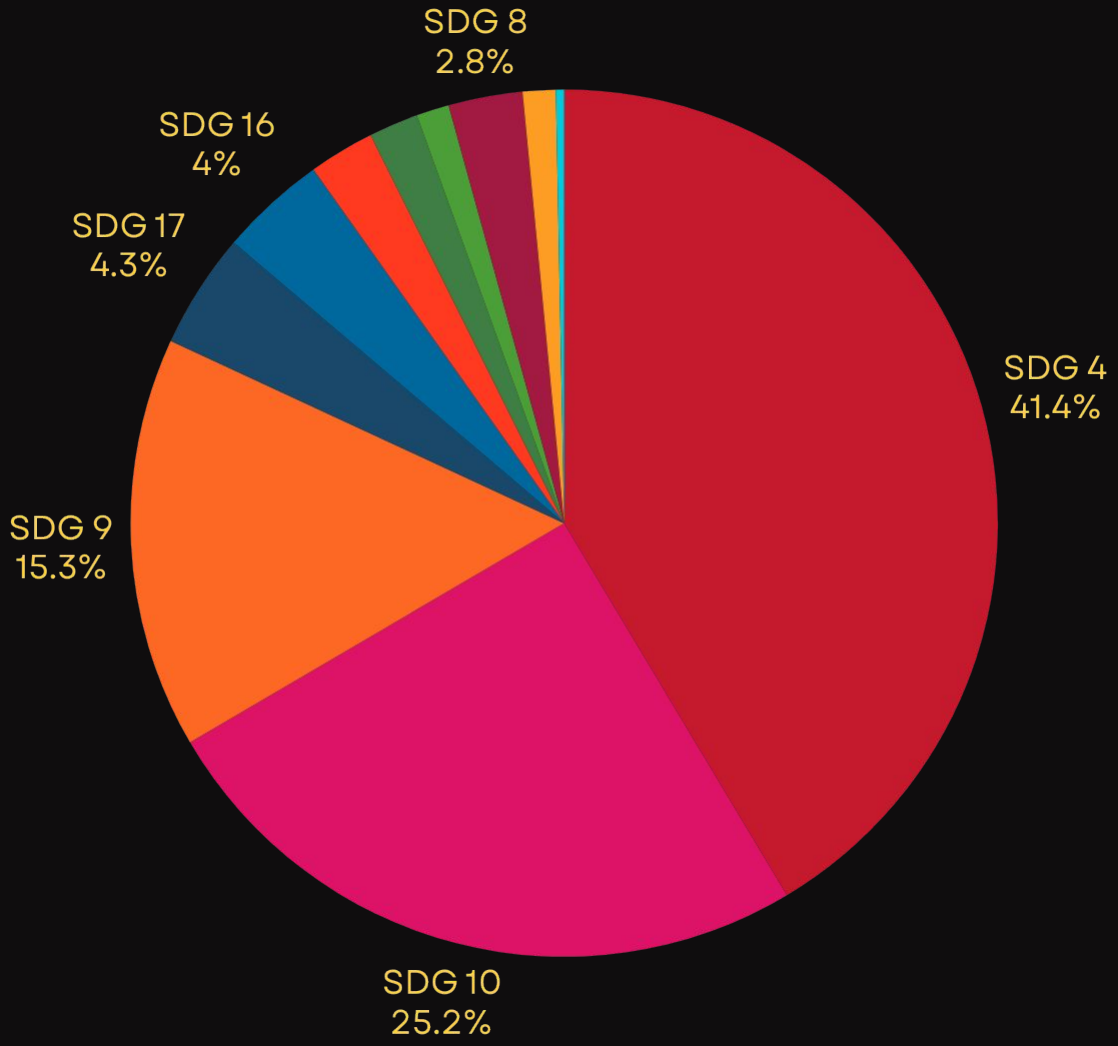
Projects Overview



Regional Distribution

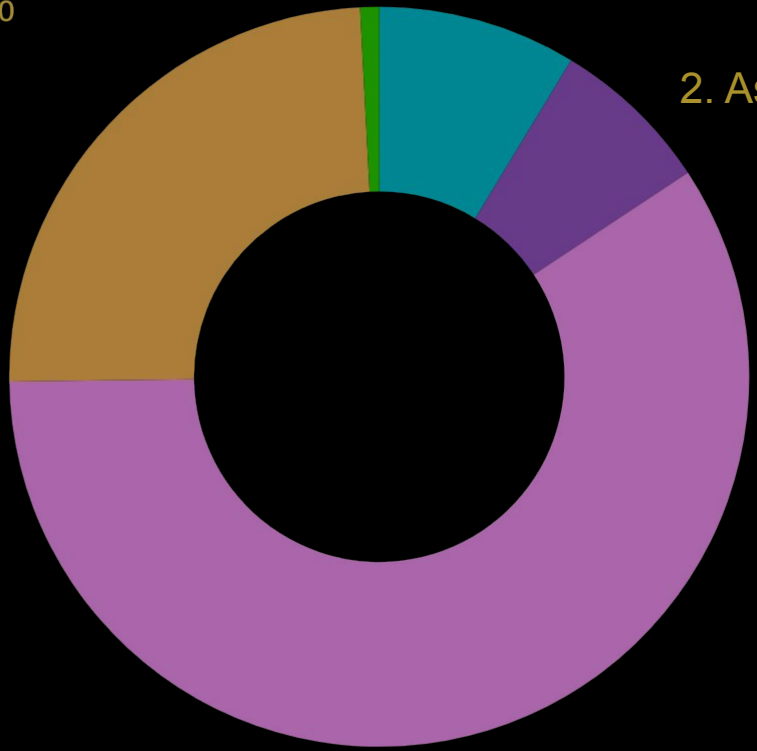


Astronomy and Society



1. Poverty
2. Hunger
3. Health
4. Education
5. Women
6. Water
7. Energy
8. Employment & Economic Growth
9. Infrastructure & Innovation
10. Inequality
11. Urban Safety & Welfare
12. Production & Consumption
13. Climate Change
14. Marine Conservation
15. Environment preservation

THE GLOBAL GOALS
For Sustainable Development


1: stimulating economies
8.7%
2. Astronomy for Science Diplomacy
7%
3: knowledge and skills for dev
59.1%
4: addressing inequality
24.4%

Themes

Thematic Area 1: Sustainable, local socio-economic development through Astronomy

Flagship Project: Astrotourism

Astrotourism is the intersection of astronomy (the study of objects in outer space) and tourism (visiting places for recreational activities). Astrotourism is a niche travel industry that focuses on celestial events, dark sky destinations, and space-related activities

CSTERC Women AstroPreneurs' Collective

2025 OAD funded project

Aim: Address the gender gap in workforce participation through astronomy-linked manufacturing

Activities: Train first-generation female graduates to produce astronomy products and build entrepreneurial skills

Impact: Create sustainable employment and foster women-led businesses in a niche but growing market

Thematic Area 2: Science diplomacy through Astronomy: Celebrating our Common Humanity

Flagship Project: Astronomy for Mental Health

The Astronomy for Mental Health flagship is focused on harnessing the inspirational potential of astronomy, and using it as a tool for improving people's mental health and wellbeing. The overarching goal is to use astronomy to empower individuals and communities to reach their full potential.

2017 OAD Funded Project

Aim: Use astronomy to inspire children, promote peace, and foster cultural exchange

Activities: Educational astronomy sessions and games promoting global citizenship “under the same sky”

Impact: Brought Greek and Turkish Cypriot children together in the buffer zone to learn about science, each other, and their shared heritage

COLUMBA-HYPATIA: ASTRONOMY FOR PEACE, CYPRUS

Thematic Area 3: Knowledge and Skills for Development

Flagship Project: Hack4Dev

The mission of Hack4dev is to establish a mechanism that boosts developmental impact and data analytics. Achieved through hosting worldwide micro-programs designed to ‘hack’ the learning of skills quickly, we empower the public to organise their own events using our resources and established programs.

Astrolab

Overview: Astrolab engages students in the scientific method through hands-on astronomy labs using remote telescopes, sparking interest in STEM fields.

Audience: Designed for students and lecturers at universities lacking lab infrastructure.

Outcomes: Enhances practical teaching, embeds Astrolab in curricula, boosts STEM interest, and encourages STEM career pathways.

Outputs: Provides free course materials, trains lecturers, and builds a global support network.

Big Data in Astronomy: A tool for Social Innovation

2018 OAD Funded Project

Aim: Build data analytics capacity in emerging countries through astronomy

Activities: Train students in research tools, astronomy, and Big Data techniques

Impact: Equip participants with transferable skills to address societal challenges

The **Pan-African School for Emerging Astronomers (PASEA)** trains students and teachers across Africa in astronomy and data-driven skills.

Through workshops and hands-on activities, participants learn programming, research methods, and telescope use.

The program fosters collaboration, critical thinking, and inspires scientific careers, strengthening Africa's role in global astronomy.

Pan African School for Emerging Astronomers (PASEA)

Thematic Area 4: Addressing inequality

2023-24 OAD Funded Project

- The **EMEJA project** supports girls in rural Kenya and Uganda by reducing dropout rates and encouraging participation in STEM, especially astronomy and physics.

- Through mentorship, scholarships, and Astro-STEM workshops, the program builds confidence, improves academic performance, and fosters long-term engagement in science.

Thematic Area 5: Technology from Astronomy

2023 OAD Funded Project

The Developing Basic Science and Astronomy using Experimental Satellites **DBSAES7 project (Ghana)** promotes STEM education through hands-on space science using experimental satellites (CanSats).

Students and teachers gain practical experience in coding, electronics, and space engineering, while partnerships with local businesses foster indigenous expertise and strengthen Ghana’s role in global space science.


COSMO
mautas
Impact stories and highlights

What our community say

Thanks to funding from IAU OAD, She Speaks Science has grown into a movement now reaching 11,000+ readers in 135 countries across the globe. It amazes me how empowering and enabling the IAU has been to us. The small grant kept us going and made us grow thanks to a dedicated team of volunteers. We wouldn't be where we are without your support. Thank you.

– Dr. Ghina Halabi, project lead, She Speaks Science

What our community say

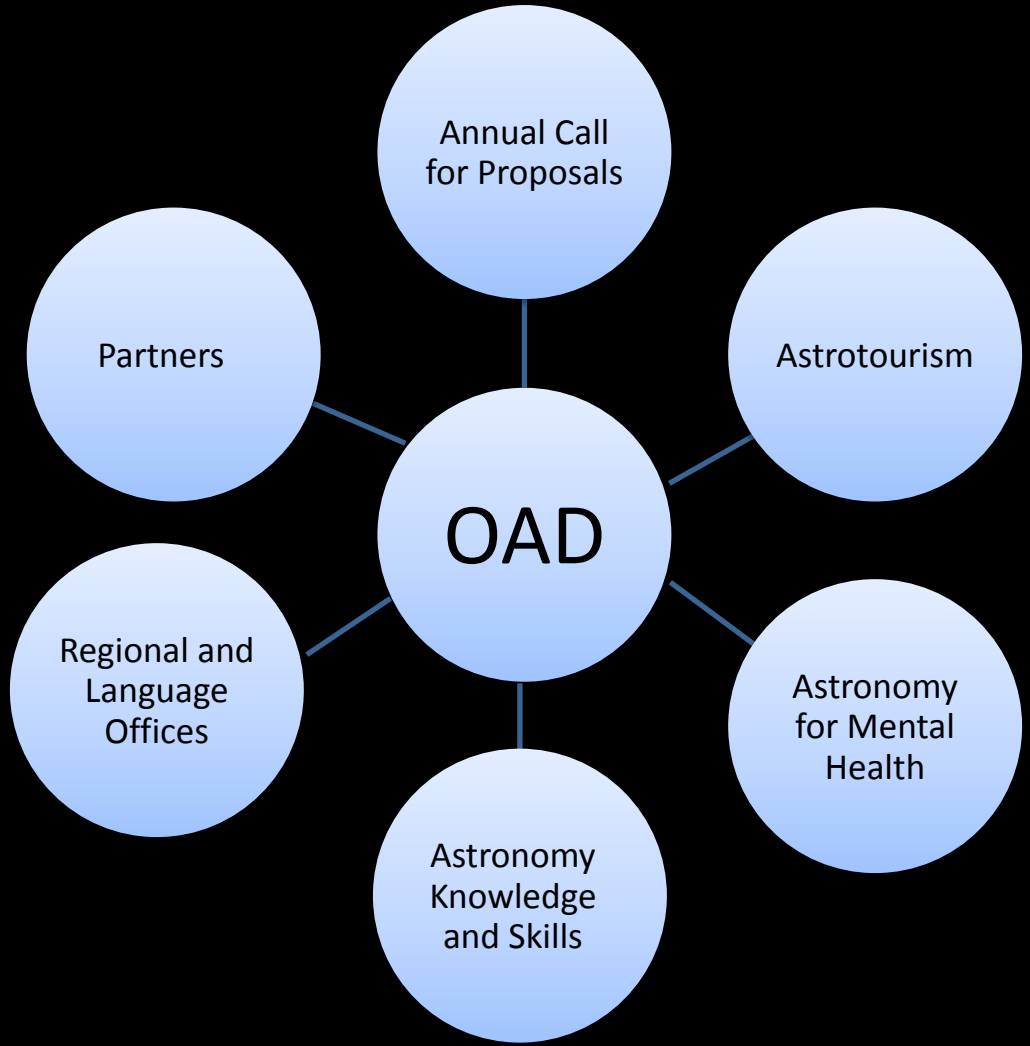
The IAU grant is integral to getting the resources and equipment to train stargazing tour guides and kick off a longer-term mission to use astrotourism as a tool for socioeconomic development in St Lucia.

– Cheyenne Polius, project lead, LUNAA Journeys Stargazing Training Programme

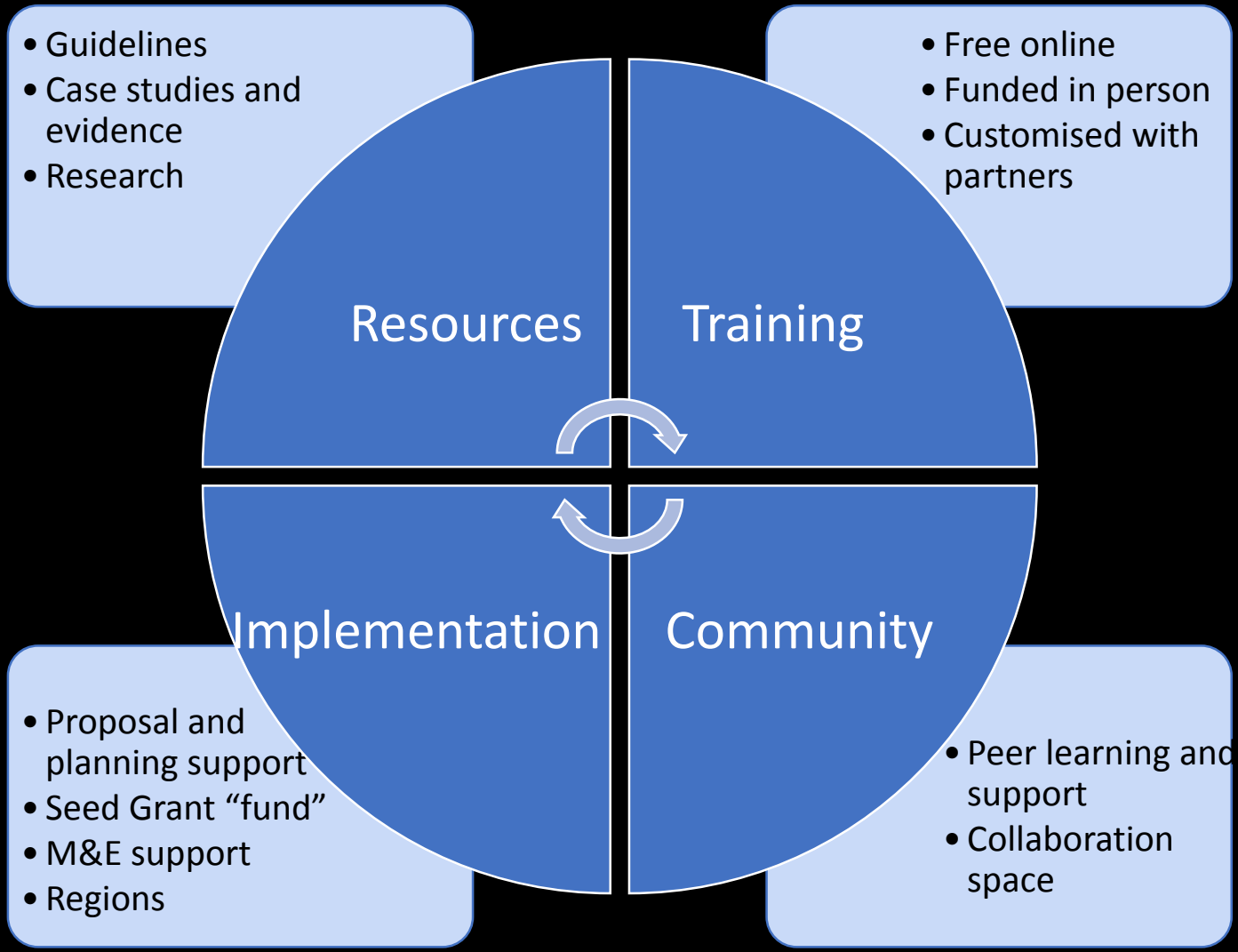
What our community say

The sky is open to all, and every child has the right to explore its wonders. With the support of IAU-OAD, we aim to bring the knowledge of astronomy to children with limited resources in Uttar Pradesh, India, inspiring curiosity and fostering a lifelong love for science among young minds.

– Dr. Tejpreet Kaur, project lead, Starlight Pathways: Bringing Astronomy to Every Child


Annual Call for Proposals
Partners
Astrotourism
OAD
Regional and Language Offices
Astronomy for Mental Health
Astronomy Knowledge and Skills

In Summary


• Guidelines
• Case studies and evidence
• Research
• Free online
• Funded in person
• Customised with partners
Resources
Training
Implementation
Community
• Proposal and planning support
• Seed Grant “fund”
• M&E support
• Regions
• Peer learning and support
• Collaboration space

Astrotourism Resources

NIGHT SKY TOURISM: A QUICK START GUIDE

FOR INHABITANTS OF RURAL AREAS

Night sky tourism is any tourism activity that happens **outdoors at night**. This guide is designed to help you come up with an interesting and locally relevant night sky activity that will attract guests to your area and stimulate the local economy.

For more resources and support, visit
www.astro4dev.org/astrotourism

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A NIGHT SKY TOURISM GUIDE

FOR EXISTING TOURISM BUSINESSES

Night sky tourism is any tourism activity that happens **outdoors at night**, and is aligned with principles of ecotourism and sustainable tourism. This guide is designed to help you come up with an interesting and locally relevant night sky activity that will attract guests to your area and stimulate the local economy.

For more resources and support, visit
www.astrotourism.astro4dev.org or email
astrotourism@astro4dev.org

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NIGHT SKY TOURISM FOR COMMUNITIES AROUND OBSERVATORIES

Night sky tourism is any tourism activity that happens outdoors at night, or involves the night sky thematically. This guide helps observatories work with surrounding local communities to create socioeconomic opportunities through complementary tourism activities.

For more resources and support, visit www.astrotourism.astro4dev.org or email astrotourism@astro4dev.org

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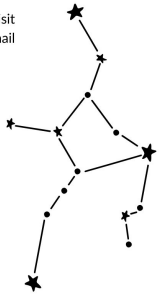


Astronomy for Mental Health Resources

Podcast

Cosmic Wellness: Astronomy for Mental Health

Astronomy for Development

ASTRONOMY FOR MENTAL HEALTH GUIDELINES

OAD

Office of Astronomy for Development (OAD)

Armine Patatanyan
Kevin Govender
Sandra Benitez Herrera
Dominic Gregory Vertue
Dr. Joyful Elma Mdhluli
Mampho Ledimo
Thara Caba

Web: http://www.astro4dev.org/mentalhealth
Online view (QR Code):

NARRATIVES REFERENCE BOOKLET

Communicating Astronomy for Mental Health

by
Dominic Vertue
Mampho Ledimo
Joyful Mdhluli

OAD
OFFICE OF ASTRONOMY FOR DEVELOPMENT

Publications – Nature Comments

- Published 2025, overview of the OAD

SPRINGER NATURE

Astronomy can make things better on Earth

Technology developed for studying the stars has far-reaching impact – but the field can go further, write a group including several from the International Astronomical Union's Office of Astronomy for Development (OAD). "The OAD was founded on a bold premise: that the curiosity, wonder, and technical precision of astronomy can be purposefully directed to address urgent societal needs – from education and health to gender equity and economic opportunity," they write. The programme has funded 236 projects across 112 countries. For example, the Amanar project linked Sahrawi refugees, displaced by violence from Western Sahara to Algeria, with the cutting-edge astronomy being done in the nearby Canary Islands.

Nature Astronomy | 11 min read

https://bit.ly/Astro4Dev

- Published 2018, overview of OAD in Africa

Comment | Published: 03 July 2018

The potential of astronomy for socioeconomic development in Africa

Vanessa McBride, Ramasamy Venugopal, Munira Hoosain, Tawanda Chingozha & Kevin Govender

Nature Astronomy **2**, 511–514 (2018) | Cite this article

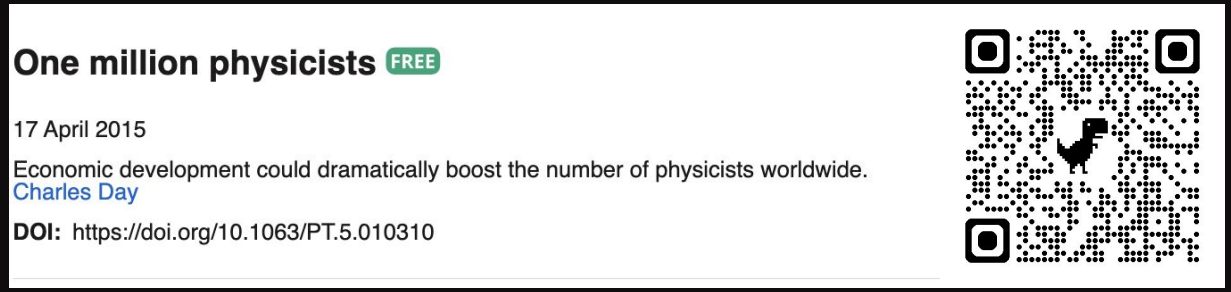
1596 Accesses | **19** Citations | **55** Altmetric | Metrics

Since 2013, the International Astronomical Union's Office of Astronomy for Development has been funding and nurturing astronomy-for-development projects across the globe. In Africa, these projects aim to use astronomy to stimulate educational, technological and socioeconomic development.

Partnerships and Collaborations

How can we work together?

- Expertise for reviewers
- Support for projects
- Spreading the word
- Collaboration on hackathons/data science



Astronomy as a bridge between cultures

CONTACT US

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Astro4dev

@astro4dev

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Join our community:
https://discord.gg/QTeSbEteCM

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THANK
YOU!
joy@astro4dev.org / info@astro4dev.org