

Astronomy for Mental Health

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SAAO
South African
Astronomical Observatory



Credit: ESO/José Francisco Salgado

Mental Health: A Global Crisis

World Health Organization, 2025

1 in 7

**people worldwide live with a
mental health condition - over
1 billion people**

76–85%

**of people with mental
disorders in low/middle
income countries get no
treatment**

\$1T

**lost every year to depression
& anxiety in lost productivity
(128 workdays)**

Even in high-income countries the treatment gap is 35–50% - and globally, median government spending on mental health is just 2% of health budgets.

Zooming In: South Africa

1 in 3

South Africans will experience a mental health condition in their lifetime

9 in 10

people with a mental illness in South Africa never receive treatment

23.5

suicides per 100,000 people a year - among the leading causes of death, ages 15-29

The “1 in 3” lifetime-risk figure is corroborated independently: the South African Stress and Health Study found 30.3% lifetime prevalence of common mental disorders.

Physics Has a Mental Health Problem

Survey of 255 physics & astronomy PhD students across 7 US universities (Banner, O'Brien & Turpen, Physics Today, Apr 2026)

38.8%

moderate-to-severe anxiety

~6x the general population

35.3%

**moderate-to-severe
depression**

~4x the general population

65.9%

moderate-to-severe

impostor phenomenon

Systematic Problems and Challenges

Underlying Causes:

Poor mental health is exacerbated by historical and socioeconomic drivers, including widespread poverty, high unemployment, and childhood trauma.

Resource Shortage:

There is a severe shortage of mental health professionals. In the public sector - which serves about 80% of the population - the functional ratio is just 0.35 psychiatrists per 100,000 people.

Stigma:

Stigma, lack of education, and cultural taboos prevent individuals from seeking early diagnoses

The IAU Office of Astronomy for Development

A joint project of the International Astronomical Union (IAU) and South Africa's National Research Foundation (NRF), supported by the Department of Science Technology and Innovation (DSTI) and hosted at the South African Astronomical Observatory (SAAO)

“Astronomy for a better world.”

254

Projects

113

Countries

2M

People Reached

€1.4M

In Grants

Overview of the IAU OAD - See Plenary (10 July, 08:30)

Three Flagship Projects

1

Astrotourism

Local socio-economic development through the night sky - See talk by Joyful Mdhuli (08 July, 15:50)

2

Astronomy for Mental Health

Celebrating our common humanity — today's focus

3

Astro4Skills

Astronomy knowledge & skills for development - See talk by Charles Takalana (09 July, 11:20)

Mission: Improving Mental Health and Well-being through the use of Astronomy

“Using the night sky to create space for self-exploration, reflection, and a profound sense of awe.”

A

Self-Exploration & Reflection

Restorative attention and awe as a setting for personal reflection

B

Interdisciplinary Collaboration

Astronomers working directly with mental health researchers

C

Accessibility

Cost-effective, naked-eye stargazing tied to local culture and myth

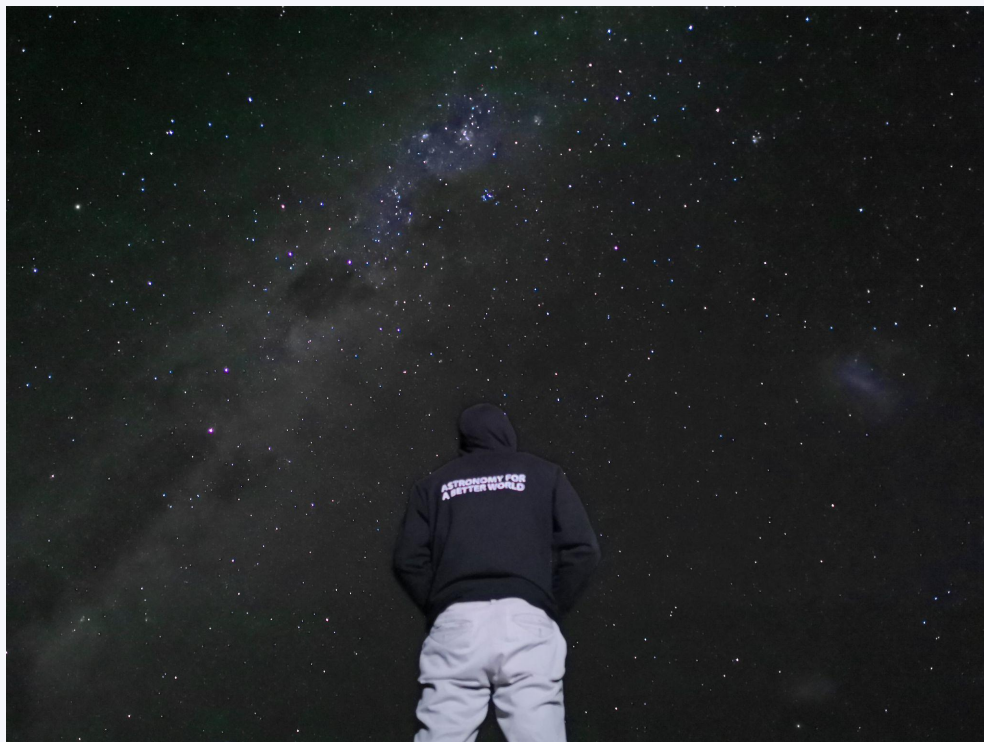




Photo Credit: SAAO

Why the Night Sky? The Evidence Base

Attention Restoration Theory

Awe-inducing natural scenes create “soft fascination” that effortlessly captures attention - restoring focus depleted by stress and mental fatigue (Kaplan; Berto, 2014).

Acceptance & Commitment Therapy

Cosmic scale metaphors - vastness, the “small self” - help build psychological flexibility and normalize difficult emotions.

Supporting research: awe & prosocial behavior (Piff et al., 2015) · restorative environments (Berto, 2014) · Night Sky Connectedness Index (Barnes et al., 2024)

Caveat: the evidence base is still early-stage — most support is inferred from broader nature/awe research, not astronomy-specific trials.

The Flagship Ecosystem

Shared across all three OAD flagships, including Astronomy for Mental Health

1

Resources

Open-access toolkits, guides, case studies and the growing evidence base - e.g. the Astronomy for Mental Health Guidelines

2

Training

Free online courses (hosted on OpenLearn), plus in-person workshops and mentorship

3

Community

A global Community of Practice on Discord connecting astronomers, mental health professionals and educators

4

Implementation

The IAU OAD Annual Call for Proposals: seed funding, regional offices, monitoring and evaluation

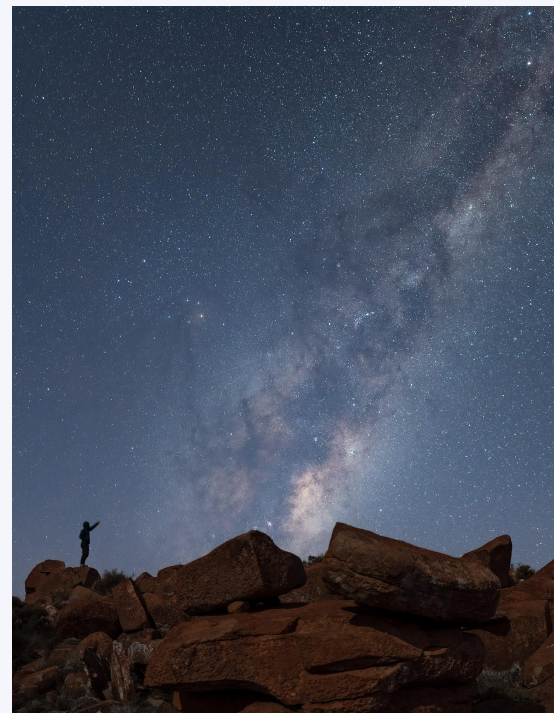


Photo Credit: SAAO

Resources

We have developed a wide range of openly accessible resources to support individuals, organisations, and institutions in designing and implementing these flagship initiatives across the globe.

These resources are intended not only to guide new entrants into the field but also to help existing practitioners broaden their offerings by incorporating astronomy into their activities.



ASTRONOMY FOR MENTAL HEALTH GUIDELINES



Office of Astronomy for Development (OAD)

Armine Patatanyan
Kevin Govender
Sandra Benitez Herrera
Dominic Gregory Vertue
Dr. Joyful Elma Mdhuli
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 Mdhuli



Building Capacity: Course & Community

Free Online Course

Hosted on OpenLearn Create

- For facilitators, mental health practitioners, science communicators and educators
- Covers awe, mindfulness, perspective and connectedness
- Risk, safeguarding and simple, safe activity frameworks
- Ends with a toolkit: activity blueprints + light-touch evaluation tools

Global Community

Peer network of practitioners

- Discord community for facilitators and researchers
- Recurring events: guided meditations at eclipses & meteor showers
- “Under the Same Stars” seasonal campaigns
- Newsletters and shared learnings across regions

On the Ground: Flagship Activities

1 Under the Same Stars

2020

Global stargazing campaign with Astronomers Without Borders during COVID-19

[Read more →](#)

2 Planetary Self-Care Workshop

4 Nov 2023

IAPS-OAD virtual workshop for physics students, 35 participants

[Read more →](#)

3 Mental Health in Conflict

15 Apr 2024

Best-practice guidance for astronomy-based support in conflict zones

[Read more →](#)

4 Practical Look Workshop

4 Jun 2024

Pilot workshop at SAAO ahead of the CAP Conference 2024

[Read more →](#)

5 Geminids Guided Meditation

13 Dec 2025

Global online meditation during the Geminids meteor shower

[Read more →](#)

6 Lunar Eclipse Meditation

3 Mar 2026

Guided meditation during the Total Lunar Eclipse from Hawai'i

[Read more →](#)

Case Study: The Glencairn Peer Camp

Proof-of-concept retreat near Cape Town - May 2025.

19 participants — field rangers, astronomy postgraduates and psychology students — combined guided naked-eye and telescope stargazing with nature immersion at a coastal mountain site. Mental well-being was measured before and after with the DASS-21 clinical scale, plus focus groups.

“We're all just tiny little animals on this rock... the universality of it definitely hit home for me.”

— study participant

Statistically significant

Anxiety	$d = 0.72, p = .003$
Depression	$d = 0.55, p = .014$
Stress	$d = 0.49, p = .024$

pre/post reductions, $n = 19$, paired t-tests

One of the first empirical, mixed-methods studies of astronomy-based mental health support in Africa.



Stellenbosch
UNIVERSITY
UNIVERSITH
UNIVERSITEIT



Case Study: Dark Skies of Sutherland

Partnership with Stellenbosch University's CoCREATE Health Hub.

A guided astronomy weekend at SALT - the Southern African Large Telescope site, among the world's darkest skies. 27 participants across 9 family groups explored the Karoo landscape and observed the night sky together, tracked with reflective, asynchronous text-based interviews.

"Astronomy has always invited us to ask big questions. Now we're learning it can also help us sit with them, quietly, together, under the same sky."

— Kevin Govender, OAD Director

Anxiety ↓

**within 24 hours of guided stargazing
(self-report)**

Caveat: family dynamics and the novelty of the setting introduced competing cognitive demands - qualitative gains, not the clean effect seen at Glencairn.

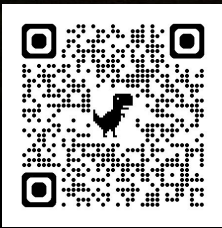


Photo Credit: SAAO

What other institutions are doing

DarkSky Community Partner

Nurturing your well-being through the great outdoors

May 28th • 9:00 a.m. PDT



 **DarkSky**

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

WITS ANGLO AMERICAN DIGITAL DOME

PRESENTS

ASTRONOMY & WELLBEING SERIES



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15H30

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Wits Anglo American Digital Dome



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Dr. Kirti Ranchod

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to support mental wellness and calm.

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 Yale Road, Braamfontein, Johannesburg, 2001

Conclusion

"Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light."

~ Carl Sagan

"Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there – on a mote of dust suspended in a sunbeam."

- Carl Sagan, 1934-1996



Thank You

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Photo Credit: SAAO

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

