

# UMnyele weZulu

EDITION 1: 6 AUGUST 2024 XXXII IAU GENERAL ASSEMBLY CAPE TOWN, SOUTH AFRICA

## Welcome to IAU GA 2024

IAU GA arrives in Africa for  
the first time

By Debra Elmegreen - Pg 3

Prof. Phil Diamond - Pg 11

Cape Town, telescopes and the  
Observatory's impressive visitor  
pavilion

CPS Protecting the Dark and Quiet Sky

Astronomy & satellite communications - Pg 14

Experience live music in the Mother City - Pg 16



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## Table of Contents

Introducing “Umnyele weZulu,” the IAU General Assembly 2024’s daily newspaper. In isiXhosa, “Umnyele weZulu” translates to “the backbone of the heavens,” a poetic name for the Milky Way. IsiXhosa is spoken by millions across Southern Africa, particularly in South Africa and Zimbabwe. As we explore the wonders of the Universe together, “Umnyele weZulu” will keep you informed and inspired, reflecting the celestial beauty of our shared sky.

- 03 Welcome to IAU GA 2024
- 04 Welcome from the National Organising Committee
- 05 Rising Stars: PhD Prize Winners at the GA
- 07 From Zoom to Cape Town
- 09 FM1: Harnessing ground-based optical telescopes
- 11 Interview: Prof Phil Diamond, D-G, SKAO
- 12 Upcoming General Assembly Resolutions
- 13 OAO/WG5 Professional-Amateur Astronomy
- 14 CPS Protecting the Dark and Quiet Sky
- 15 Astrolab
- 16 Discover Cape Town’s Live Music Scene
- 17 Programme Week 1
- 18 Programme Week 2
- 19 Exhibitors
- 20 Public Events



### Upcoming Events

The discovery and scientific potential of fast radio bursts  
06 Aug

Cosmic Echoes art exhibition  
06 to 15 Aug

FM1: Harnessing ground-based optical telescopes  
06 to 07 Aug

Centre for the Protection of the Dark and Quiet Sky (CPS)  
07 to 08 Aug

Focus Meeting: History of astronomy in South Africa  
07 to 08 Aug

Voting sessions for General Assembly Resolutions  
07 & 14 Aug

Astrolab demonstrations  
07, 08, 09, 12 & 14 Aug

Get your free pair of Spectral Glasses

Details on Page 5



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XXXII IAU GENERAL ASSEMBLY

CAPE TOWN, SOUTH AFRICA, 2024

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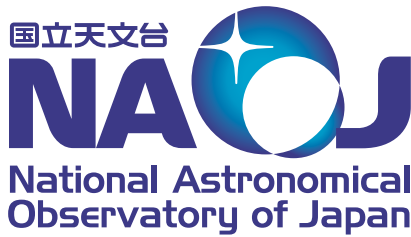


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# Welcome to IAU GA 2024

Prof Debra Elmegreen



Welcome to the XXXII<sup>nd</sup> General Assembly, the first ever on the African continent!

Preparations began in 2018 when the National Organizing Committee's winning bid was announced at the XXX<sup>th</sup> General Assembly in Vienna. As the world comes to Cape Town, in person or virtually, we celebrate the rich history of astronomy in Africa as we present our research, initiate new collaborations, enjoy networking, and share astronomy with the public. August is designated as Africa Astronomy Month, an appropriate cap to the Vision2024 efforts that have united Africans in their preparations to share astronomy with the world.

Astronomy in Africa began at least 7 000 years ago, with a stone circle known as Nabta Playa that predates Stonehenge. International observational survey work was led by astronomers at Cape Town over two centuries ago and continues with the present-day SALT at the South African Astronomical Observatory (NRF-SAAO), the MeerKAT radio array as a precursor to SKA, the KELT and SuperWASP telescopes, and the H.E.S.S. gamma ray telescopes, among many others.

South Africa became an IAU member in 1922, shortly after the IAU's founding. Other African National Members include Algeria, the Republic of Botswana, Egypt, Ethiopia, Morocco, Madagascar, Mozambique, and Nigeria. Africa plays a vital role in IAU activities. The Office of Astronomy for Development, headquartered in South Africa, has engaged thousands of people in projects that draw on the excitement of astronomy and apply its technologies through local programs to achieve UN Sustainable Development Goals. African countries have hosted several IAU symposia, workshops, and international schools for young astronomers over the years. African astronomers have held many IAU leadership roles, including current Vice President Solomon Tessema from Ethiopia, past Vice President

Renée Kraan-Korteweg from South Africa, and several others on our steering committees.

We welcome 527 new Individual Members and Junior Members to the IAU. We will be announcing new Honorary Members at this GA. We have an exciting schedule planned, with lectures from international prize laureates plus talks and posters including many by early career astronomers. The plenary talks, invited discourses, symposia, focus meetings, meetings of the offices and CPS, executive committee working groups, division days, and Women in Astronomy and Young Astronomer Lunches, and outreach and social events encompass all aspects of IAU activities. These events further the goals as laid out in our 2020-2030 Strategic Plan, which communicate astronomical knowledge, promote the inclusive advancement of astronomy, promote the use of astronomy as a tool for development, engage the public in astronomy, and stimulate the use of astronomy for teaching and education.

With the full engagement of Africa in astronomy, including the intense efforts to make this meeting open access, this is truly an historic General Assembly. I wish you all a memorable meeting!

*Debra Elmegreen is President of the IAU and Professor Emerita at Vassar College.*

**Astronomy in Africa began at least  
7 000 years ago.**



# Welcome from the National Organising Committee

Welcome to delegates, speakers, exhibitors, sponsors, accompanying guests!



This is the first General Assembly of the International Astronomical Union on African soil and the build-up has been monumental. Over the coming eight days, discoveries in astronomy will be presented within a stone's throw of Hoerikwaggo, better known as Table Mountain. Old colleagues will reconnect and new collaborations will be forged. We'll find better ways of doing science, and ways in which science can build a better world for all.

This General Assembly is about more than astronomy, and more than astronomy in Africa. It's also an opportunity for our community to change the way we conference. The 2024 General Assembly is breaking new ground in terms of accessibility, with all sessions being live streamed on YouTube. This year, invite your relatives to follow your talk in real time. For those who can't travel, we have a carefully considered virtual programme that will deliver a rich and unique experience.

Leaving a legacy for astronomy in Africa is paramount. Through strategic fundraising, a record number of bursaries has been made available to attendees from the African continent. A cascade model for outreach to communities in Cape Town and beyond will be implemented at scale. The impact will be felt for many years to come.

At the southern tip of Africa, we are acutely aware of how Cape Town is a long haul destination for most travellers. That's why sustainability is another key pillar of the conference. Our organising committee has worked with attendees, exhibitors and the venue to minimise waste and emissions. Our principle has been to ensure that any emissions we create are offset by creating value elsewhere, through education, collaboration or

capacity-building.

Whether you are online or in-person this year, we invite you to enjoy the warmth of an African welcome to a truly world-class and novel conference.

Wamkelekile! Amohela! Ndewo! Karibu! Welcome!

<https://astronomy2024.org/local-organising-committee/>



**Kevin Govender (OAD)**  
Chair



**Charles Takalani (AfAS)**  
Vice-Chair



**Vanessa McBride (ISC)**  
Vice-Chair

## Rising Stars PhD Prize Winners at the GA

Abril Sahade, PhD

Prize-at-large recipient, 2023



Winning the PhD Prize-at-Large is an enormous honour and privilege. It is my first time participating in the IAU General Assembly and presenting my work outside Argentina. I am very excited to share with the community a summary of my PhD research, which focuses on how coronal mass ejections (CMEs) propagation is influenced by the magnetic environment of their source regions.

Currently, I am working at NASA Goddard Space Flight Center under the NASA Postdoctoral Program, continuing my previous investigation and broadening the scope of my research to questions such as whether a solar eruption will be successful or confined.

I hope this award helps to highlight not only my work, but also all the contributions that countries like Argentina are making to the field. I completed my undergraduate and graduate studies at Universidad Nacional de Córdoba, and this prize confirms the high quality of education at Argentina's national universities.

I owe this achievement to the accessibility of public education and the support of CONICET, which granted me a doctoral scholarship. I am grateful to these institutions and everyone who has supported my journey, including the IAU for awarding me with this prize.

The IAU PhD Prizes are awarded annually to recognise the outstanding work being done by Doctoral students in astrophysics around the world. Every year, each IAU Division has the opportunity to award one of these prizes to the candidate it feels has conducted the most remarkable research in the previous year. Additionally, the Divisions can also jointly award one PhD Prize-at-Large.

Recipients of these prizes receive registration to attend the GA following their award, where certificates are presented during Division Days.

### Did you know?

The history of astronomy in Africa is fraught with ancient structures whose ages span millennia, and today it hosts the largest optical telescope in the Southern Hemisphere, the Southern African Large Telescope (SALT), aka "Africa's Giant Eye", and to part of the upcoming Square Kilometer Array (SKA) radio telescope. A special Focus Meeting navigates the participants through the tapestry of historical events, major actors, observing missions, and discoveries (speckled with tantalizing photographs of the sky and of the past). Tune in to learn more from the presenters of the Focus Meeting History of Astronomy in South Africa, held on August 7-8, 2024.

[CLICK HERE FOR MORE INFORMATION](#)

## Get your free pair of spectral glasses & learn about spectroscopy

Want to introduce your students to the universe in glorious technicolour? If yes, then head over to the IAU Office of Astronomy for Education (OAE) stall at the IAU booth to pick up your free pair of OAE spectral glasses. They're linked to a classroom activity using everyday light sources to teach about spectroscopy and the processes that emit light.







SKAO

IAU General Assembly Session on the

# Centre for the Protection of the Dark and Quiet Sky from Satellite Constellation Interference (CPS)

7–8 August 2024



**7 August** (10:30 – 17:00)

**8 August** (8:00 – 9:30)

(South Africa Standard Time = GMT + 2h)

In-person and online

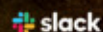


**Cape Town International  
Convention Centre**

in Cape Town, South Africa



<https://cps.iau.org/meetings/iauga24cps>



#cps-satcons for the CPS session

Image Credit: Florian Kriebelbauer



# From Zoom to Cape Town

Eduardo Penteado



## Meet the National Astronomy Education Coordinators

At the Office of Astronomy for Education (OAE), we believe that a strong network is crucial for achieving our goals. That's why we have dedicated time and resources to build a wide-ranging network of National Astronomy Education Coordinators (NAECs). These volunteers play an essential role in helping the OAE fulfill its mission: *To support the use of astronomy for teaching in primary and secondary school.*

Since the OAE's inception, we have focused on developing this network, with the aim of gender balanced, and geographically and culturally diverse teams. We also want to ensure representation from all regions globally. Over time, this network has grown to over 400 people across 121 countries and territories during the first mandate.

The mandate of a NAEC is cyclical as it aligns with the IAU General Assembly. As we approach the end of the first cycle, we are in the midst of the recertification process as the first mandate finishes in August. NAECs are welcome to remain in the network, provided the team maintains diversity. While many NAECs have chosen to stay, there are still open spots in many teams, so we are always welcoming new applications until the team is complete with its full capacity of five members.

Given the widespread nature of the NAEC network, online meetings have become common and effective, especially in the post-COVID era. However, we recognise the importance of in-person interactions for building strong bonds within the team. Such opportunities are rare, making the General Assembly a prime occasion for face-to-face meetings. We are thrilled to finally meet and connect with some of the NAECs in person, providing a chance to shake hands and have informal chats.

We expect around 40 NAECs to be present in person in the General Assembly in Cape Town. Participants are

from countries including Algeria, Australia, Cameroon, Chad, Côte d'Ivoire, Ethiopia, Ghana, India, Japan, Jordan, Kenya, Madagascar, Mauritania, Nepal, Nigeria, Pakistan, Réunion, Spain, Syria, Tanzania, Thailand, and Zambia. Many others will join virtually.

Some NAECs will deliver talks while others will present posters, all showcasing their outstanding work in astronomy education and highlighting their activities in their countries. They will also strengthen relationships within the global astronomical community, bringing back valuable insights and collaborations to their home countries, which will undoubtedly enhance astronomy education.

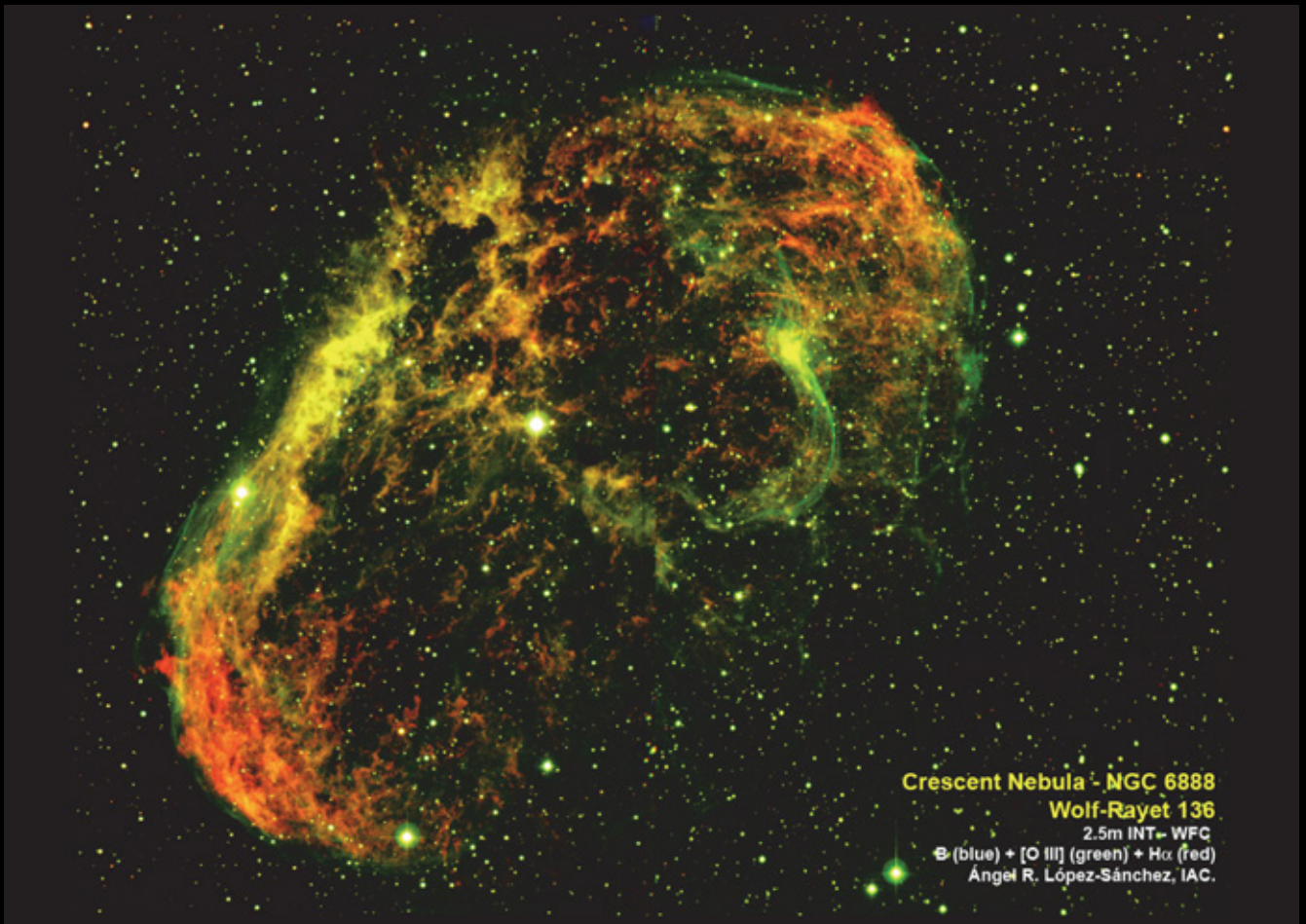
The OAE takes great pride in this network and looks forward to meeting all NAECs present. We invite everyone to visit our booth for an informal chat and a group photo to capture the spirit of collaboration and friendship among colleagues from around the world.

*Eduardo Penteado is a Co-ordinator at the Office of Astronomy for Education.*



*Retrograde motion of Mars. Image: Rob Kerby Guevara/IAU OAE*

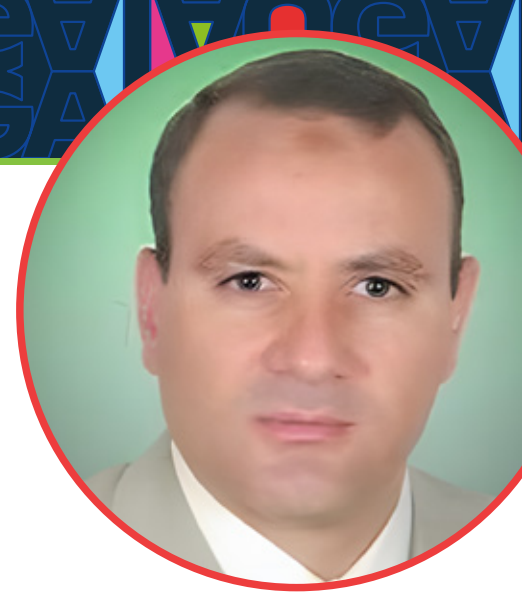




**Crescent Nebula - NGC 6888**  
**Wolf-Rayet 136**  
2.5m INT- WFC  
B (blue) + [O III] (green) + H $\alpha$  (red)  
Ángel R. López-Sánchez, IAC.

# FM1: Harnessing ground-based optical telescopes

Yosry Azzam, NRIAG



## An opportunity for emerging astronomy in Africa

Astronomy has a long and rich relationship in Africa. The world recognised this fact and recognised the importance of the geographical location of Africa about two centuries ago. In addition to South Africa, which hosts the 11m SALT telescope and the SKA project, which is considered to be the world's largest radio telescope, a number of African countries are rapidly developing their own astronomy programs and instruments, such as the refurbished Kottamia Astronomical Observatory in Egypt; Oukaïmeden Observatory in Morocco; the Entoto Observatory; and Research Centre in Ethiopia; the 32 m radio telescope observatory in Ghana; a 1 m optical telescope in Burkina Faso; several radio astronomy initiatives in Nigeria; and much more. In addition, Egypt is planning to build another bigger telescope, the 6.5 m Egyptian Large Optical Telescope (ELOT). The Lalibela infrared and optical telescope (1-5 m) project is another initiative that will boost African astronomy research.

FM1 is organised so as to garner the support of the astronomical community for ELOT and similar small and middle-sized telescopes (1-6 m) that can be built on the African continent. In addition, the FM1 will discuss the networking of telescopes across the African continent. It will likewise cover the protection of existing observatories and dark sky sites in Africa and identify new observatory sites through site testing. This will help in defining the science cases that can be exploited with African telescopes and will enrich the outreach and educational activities in schools, universities, observatories, museums, and astronomical societies across the African continent. In addition, it will support scientific research and international collaborations amongst African countries, strengthen African collaborations and minimise the efforts and resources through collaborations for maximising the outcomes.

FM1 will feature six oral sessions in addition to four poster sessions during the two days of 6 and 7 August. Oral sessions will include 12 invited talks from world

pioneers in various FM-related topics as well as 15 contributed talks. Likewise, poster sessions include 25 posters. I encourage everyone to come and attend our FM sessions.

*Yosry Azzam is a Professor Engineer at the National Research Institute of Astronomy and Geophysics (NRIAG) in Cairo, Egypt.*



*The Oukaïmeden Observatory in Morocco. Image: moss-observatory.org*



*The dome of Kottamia telescope in Egypt. Image: NRIAG*





## Harnessing ground-based optical telescopes: an opportunity for emerging astronomy in Africa

[www.telescopes-fm2024.sao.ac.za](http://www.telescopes-fm2024.sao.ac.za)



### Topics include:

- Enabling astronomy research with optical telescopes in Africa
- Astronomical observatory sites in Africa
- Future plans for development of new African facilities
- Benefits of multiwavelength astronomy facilities

6 - 7 August 2024

Cape Town, South Africa

# Prof. Phil Diamond Director General, SKAO

Prof. Phil Diamond reflects on construction of two of the world's largest radio telescopes, the SKAO's kinship with Cape Town, and what the Observatory has in store at XXXII IAU GA

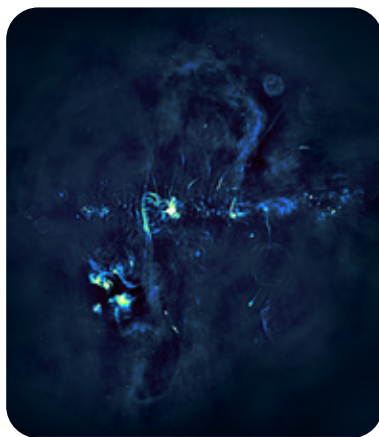


“ I was thrilled when it was announced that the 2024 IAU GA would be in Cape Town. It is long-overdue to be hosted on the African continent.

It also presents wonderful timing for the SKAO. This city is one of our hometowns. We are building one of the largest radio telescope arrays on the planet in South Africa, and our Cape Town offices are effectively a stone's throw away from where the General Assembly is happening.

When I think back to the postponement of the IAU GA in South Korea, the SKAO had recently been created as an intergovernmental organisation, and we were still establishing our teams in our telescope host countries.

This was in the middle of the COVID-19 pandemic, and the realities of the world around us were intruding. But thanks to the fantastic efforts of our project team, things have moved on tremendously, and we are now well underway, turning our plans into reality. The team has grown quite rapidly in the last couple of years, with



Radio bubbles observed with the MeerKAT telescope. Image: NRF-SARAO

55 people in our Cape Town and Klerefontein offices in South Africa, and 76 people in Perth and Geraldton in Australia, and it's meant to grow even further as construction progresses and we start operating the telescopes.

On 5 December 2022, we held construction commencement ceremonies to mark the start of earth-moving to build our telescopes in Australia and South

Africa, and in the past few months we celebrated the 'big lift' of the first SKA-Mid dish onto its pedestal, and the installation of the first SKA-Low antennas.

Our membership has also grown. Since August 2022 and the last IAU GA, Switzerland, Spain and Canada have joined the SKAO and are enjoying the suite of benefits that comes with membership, including industrial contracting, skills and job creation, as well as scientific access to the telescopes once they are operational later this decade.

South Africa has made fantastic investments in astronomy. MeerKAT is a wonderful instrument, producing ground-breaking scientific results. Their human capital development programme is producing a tremendous number of young, gifted students, which the SKAO has benefitted from.

We look forward to engaging with the astronomical community over the coming days, and telling people more about our Observatory.

We also have a full day side event, **SKAO: Exploring a Universe of Possibilities** on Friday 9 August, with an all-female speaker line-up to coincide with South Africa's Women's Day.

So come and see us. We have a magnificent pavilion full of lots of information.

Talk to our people and learn what a science mega-project consisting of building some of the world's largest radio telescopes is really like. ”

*The SKAO pavilion is located at CTICC | B4-B9*



# Upcoming General Assembly Resolutions

## Resolutions to be voted on at the XXXII General Assembly



Every three years, in coordination with the IAU General Assembly (GA), the IAU membership has the opportunity to make recommendations on scientific, administrative, and financial matters that have a broad and significant impact on the Union and the astronomical community as a whole.

Three resolutions will be presented for voting during the Business Sessions of the XXXII IAU GA in Cape Town, South Africa on 07 August and 14 August 2024. The IAU Resolutions Committee has now approved the proposals of these three resolutions, which are as follows:

- [Resolution I](#) for the Protection of the Dark and Quiet Sky from harmful interference by satellite constellations
- [Resolution II](#) to establish a standard Lunar Celestial Reference System (LCRS) and Lunar Coordinate Time (TCL)
- [Resolution III](#) on the establishment of a coordinated lunar time standard by international agreement

Voting will be accessible to both online and onsite participants of the General Assembly. After the Resolutions have been presented at the first Business Session on 07 August, 5:15 pm (UTC+2), the voting will open for the duration of the second Business Session on 14 August, 5:15 pm (UTC+2) until 6:30 pm.

*The texts of the three resolutions can be accessed via the links above.*

### More information

The IAU is the international astronomical organisation that brings together more than 12 000 active professional astronomers from more than 100 countries worldwide. Its mission is to promote and safeguard astronomy in all its aspects, including research, communication,

education and development, through international cooperation. The IAU also serves as the internationally recognised authority for assigning designations to celestial bodies and the surface features on them. Founded in 1919, the IAU is the world's largest professional body for astronomers.

### Links

[IAU Resolutions](#)

### Contacts

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(Top) XXXI IAU General Assembly held in Busan, Korea.

Image: IAU/GA2022 NOC

# OAO/WG5 Professional-Amateur Astronomy

Kelly Blumenthal, Aniket Sule, Tim Spuck

## Astronomy for Everyone



The IAU General Assemblies bring together astronomers with a wide range of interests and focus areas, from theoretical astrophysics to community engagement with astronomy. The Symposia, Focus Meetings, Division Days, Offices' Institutional Meetings and Working Group sessions represent this diversity. Synergies found between the content discussed during the GA facilitate further discussion, collaboration, and connection between the various bodies of the IAU, strengthening us as a community. During this GA, the IAU Office for Astronomy Outreach (OAO) and the IAU Executive Committee Working Group on Professional-Amateur Relations in Astronomy (WG5) have joined forces to develop an exciting programme to showcase communication researchers' and practitioners' incredible developments.

The IAU Office for Astronomy Outreach focuses on communicating astronomy with the public, providing open access to astronomical information and professionalising the field of astronomy communication. It oversees a network of more than 120 National Outreach Coordinators who carry out the OAO's projects and programmes on the international stage. In 2024, we not only celebrate the 10-year anniversary of the network but also welcome 66 new NOCs in this new triennium. One of the three sessions of the OAO Institutional Meeting (OAO-1; 6 August from 10:30 - 12:00) will be dedicated exclusively to the work of the NOCs, showcasing five talks and 16 posters from communicators in Ghana, Japan, Colombia, and beyond.

In pursuit of our motto, Astronomy for Everyone, the OAO aims to promote cutting-edge astronomy communication practices, providing everyone with new techniques and methodologies to engage the public with astronomy. Many of the people in our networks – be they astronomers with a love for communicating astronomy or professional science communicators

– are at the forefront of developing these important resources. At the OAO Institutional Meeting (OAO-3; 15:30 - 17:00), attendees will learn about projects such as a programme that brings mobile planetariums to remote parts of Namibia, the breadth of astronomy outreach taking place across Africa and cutting-edge technology for astronomy communication.

The IAU Executive Committee Working Group on Professional-Amateur Relations in Astronomy was established in 2021 as a dedicated working group for creating collaboration opportunities between professional and amateur astronomers. From its inception, the working group has maintained close contact with OAO and has leveraged its widespread network to spread its message. In addition to serving as the business meeting for the working group, the WG5-led session (OAO-2; 13:30 - 15:00) will present an overview of activities of WG5 to date and will act as a gateway to explore new avenues for professional-amateur collaborations through contributed talks and posters focusing on these research collaborations, citizen science, and amateur-led outreach and communication activities.

We encourage everyone interested in astronomy outreach, collaboration and co-creation, and innovation in astronomy communication to join the OAO Institutional Meeting. Far more than just a series of talks, these sessions will also feature more than 40 posters – please take the time to explore their work during the coffee breaks and online!

**OAO-1** 10:30-12:00 Tuesday, 6 August  
Meeting Room 2.61 - 2.63

**OAO-2** 13:30-15:00 Tuesday, 6 August  
Meeting Room 2.61 - 2.63

**OAO-3** 15:30-17:00 Tuesday, 6 August  
Meeting Room 2.61 - 2.63



# CPS Protecting the Dark and Quiet Sky

Observational astronomy from ultraviolet through radio is now at a watershed moment.

The use of near-Earth orbit has transitioned to domination by commercial and national networks of satellites for communications and monitoring. Those numerous satellites reflect sunlight onto O/IR telescopes and produce increasing levels of radio interference. To mitigate the impacts on astronomy, IAU established the CPS, the (virtual) Centre for the Protection of the Dark and Quiet Sky from Satellites Constellation Interference. The CPS is generously supported by two host institutions, the US national observatory, NOIRLab, and the Square Kilometre Array Observatory.

The CPS has structured its network of dedicated volunteers into work on four themes, through sub-groups called Hubs. The SatHub organises observing campaigns, often in coordination with industry, to assess the brightness of newly launched satellites. They maintain a growing database of satellite imaging and measurement. They also produce software to predict the positions and brightnesses of all registered satellites and major debris to support the planning of observations. Look for a press conference on Thursday 8 August for an announcement about major support for that undertaking.

The Industry and Technology Hub engages more than a dozen satellite operators and New Space companies to inform them about the impacts of their operations on astronomy and to create a mechanism for sharing mitigation approaches and technical solutions. The Policy Hub provides detailed legal and policy analyses to form the basis for recommending policy frameworks for advocacy by the IAU and other astronomical societies to the UN and international and national policy makers. An important resolution about the IAU's public position on satellite constellations is up for your (positive!) consideration at this GA. The Community Engagement Hub informs the public about these issues, as well as engages indigenous communities to understand their

Richard Green



concerns about cultural impacts.

Do you want to know how bright is bright for the large new communications satellites being launched? To get a snapshot of how world governments are responding to astronomy concerns? To get a direct impression of how industry is voluntarily addressing the issues? To expand your public messaging to include this critical issue? To learn how to add your efforts to the growing need to address the major impact? Take a look at the schedule and join us for all or part of the CPS sessions scheduled for Wednesday, 7 August.

*Richard Green is the Assistant Director for Government Relations at the University of Arizona's Department of Astronomy and Steward Observatory and interim Director of the IAU CPS.*



*A long-exposure image of the Orion Nebula with a total exposure time of 208 minutes showing satellite trails in mid-December 2019. Credit: A. H. Abolfath/NOIRLab/NSF/AURA*

# Astrolab

Michele Gerbaldi & Kshitij Thorat

Short presentations of a hands-on activity at university during the Coffee Breaks at the OAD booth.



### Times

10:00 - 10:30 and 15:00 - 15:30

### Days

Wednesday 07, Thursday 08, Friday 09,  
Monday 12, and Wednesday 14

Astrolab is an enquiry-based astronomy lab that provides students with hands-on experience with real astronomical observations in a classroom setting. It follows the “Learning-by-doing” methodology whereby the students learn based on experience, assimilating concepts through actions.

Astrolab is geared towards undergraduate and postgraduate science students and can be implemented as a workshop or as (part of) an undergraduate course taught during the university semester.

The use of Astrolab is free of charge and, because the observations can be carried out with remote/robotic telescopes, there is no need to invest in astronomical equipment or pay for travel to an observatory.

The principal objective of Astrolab is to offer (undergraduate) university students a real, interactive observational astrophysics experience from defining an observation to a research result, giving the students a taste of what research and science has to offer.

Parts of Astrolab may also be used depending on the context that it will be used in. For example, for a more technical engineering course, one can focus on the properties of CCD images or on the optical properties of a telescope.

The Astrolab project provides, at no cost, manuals and Microsoft PowerPoint presentations which can be used during the

classes. A self-explanatory tutorial is available to help trainers/tutors get started with an access to remote/robotic telescopes.

### Astrolab implementation is flexible

Astrolab was been developed in 2013 by Jean-Pierre De Greve of Vrije Universiteit in Belgium and Michèle Gerbaldi of the Institut d’Astrophysique de Paris in France, with the support of the IAU/OAD. In 2019 Nicole van der Blik (NSF’s NOIRLab) joined the team.

During the GA you will have the possibility to discuss directly with colleagues who have used Astrolab in the classroom. Slack is also a channel of discussion on Astrolab.

[www.astro4dev.org/astrolab-starlight-in-the-university-lab/](http://www.astro4dev.org/astrolab-starlight-in-the-university-lab/)

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Kshitij Thorat: [kshitijthorat.astro@gmail.com](mailto:kshitijthorat.astro@gmail.com)



NRF-SAAO’s site in Sutherland in South Africa’s arid Karoo region. Image: NRF-SAAO



# Discover Cape Town's Live Music Scene

## Your Guide to Live Music in the Mother City

Cape Town has a unique connection to jazz, which was shaped by the city's cultural melting pot from its early days. By the 1960s, Cape Town was home to renowned jazz musicians such as Basil Coetzee, Winston Mankunku, and Abdullah Ibrahim, who was known as Dollar Brand at the time.

Ibrahim, who was in exile, returned to Cape Town and recorded the iconic jazz tune "Mannenberg" in a local studio, leaving a lasting legacy.

Jazz in Cape Town is not just about music, but also about the city's complex history, the struggle for freedom, and the experiences of those who were forced into exile.



Get ready to sway and celebrate our city! From soulful jazz performances to electrifying local bands, the city has something to offer for all music enthusiasts. Here's a list of upcoming jazz nights and live performances in Cape Town.

### Groovy Jazz Nights

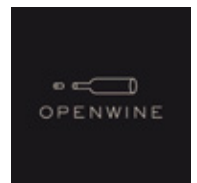
**The Athletic Club & Social**  
Thursday, 8 & 15 August from 9pm

**Open Wine**  
Sunday, 11 August from 5pm

**Time Out Market at the V&A Waterfront**  
Wednesday 7 & 14 August from 6-9pm

**Mojo Market**  
Daily live performances  
Tuesday-Thursday: 8-10pm  
Friday: 6.30-8.30pm & 9-11pm  
Saturday: 1-3pm & 3.30-5.50pm & 6.30-8.30pm & 9-11pm  
Sunday: 1-3pm & 4-6pm

Please visit [@themojomarket](#) on Instagram or [Mojo Market](#) on Facebook for more information.





# PROGRAMME WEEK 1

	TUE - Aug 6th		WED - Aug 7th		THU - Aug 8th		FRI - Aug 9th
08:30 – 10:00 Morning plenary	Registration		IAUS 389 plenary		IAUS 390 plenary		IAUS 391 plenary
10:00 – 10:30 Morning e-poster & coffee break	IAUS 389, 390, 391 FM1, FM2, FM3, FM7, OAO		IAUS 389, 390, 391 FM1, FM2, FM5, FM6, CPS, OAE		IAUS 389, 390, 391 FM3, FM7, FM5, FM6, OYA, OAD		Division e-poster
10:30 – 12:00 Morning oral session	S 389-1 S 390-1 S 391-1 OAO-1	FM1-1 FM2-1 FM3-1 FM7-1	S 389-4 S 390-4 S 391-4 CPS-1 OAE-1	FM1-4 FM2-4 FM5-4 FM6-1	S 389-7 S 390-7 S 391-7 OYA-1 OAD-1	FM3-4 FM7-4 FM5-4 FM6-4	Parallel Division Oral Sessions
12:00 – 13:30 Lunch	Shaw Prize		ODE Prize Talks		Gruber Prize		Women in Astronomy
13:30 – 15:00 Afternoon oral session 1	S 389-2 S 390-2 S 391-2 OAO-2/ WG5	FM1-2 FM2-2 FM3-2 FM7-2	S 389-5 S 390-5 S 391-5 CPS-2 OAE-2	FM1-5 FM2-5 FM5-2 FM6-2	S 389-8 S 390-8 S 391-8 OYA-2 OAD-2	FM3-5 FM7-5 FM5-5 FM6-5	Parallel Division Oral Sessions
15:00 – 15:30 Afternoon e-poster & coffee break	IAUS 389, 390, 391 FM1, FM2, FM3, FM7, WG5, OAO		IAUS 389, 390, 391 FM1, FM2, FM5, FM6, CPS, OAE		IAUS 389, 390, 391 FM3, FM7, FM5, FM6, OYA, OAD		Division e-poster
15:30 – 17:00 Afternoon oral session 2	S 389-3 S 390-3 S 391-3 OAO-3	FM1-3 FM2-3 FM3-3 FM7-3	S 389-6 S 390-6 S 391-6 CPS-3 OAE-3	FM1-6 FM2-6 FM5-3 FM6-3	S 389-9 S 390-9 S 391-9 OYA-3 OAD-3	FM3-6 FM7-6 FM5-6 FM6-6	Joint Offices Meeting
17:15 – 18:30 Afternoon plenary	Opening Ceremony		Business 1		Invited Discourse: Dr Bernie Fanaroff		Invited Discourse: Prof Joop Schaye
18:30 – 21:30 Various	Welcome Reception		Public Talk: Astronaut Dr Sian Proctor 19:30 – 21:30		An evening with NASA 19:00 – 21:00		Public Talk: Prof Gerry Gilmore 18:15 – 19:15 Astronomer's Got Other Talent 19:30 – 21:30

Background: Neutral hydrogen in the Large Magellanic Cloud. Image courtesy of CSIRO, L. Staveley-Smith.



# PROGRAMME WEEK 2

	MON - Aug 12th	TUE - Aug 13th	WED - Aug 14th	THU - Aug 15th
<b>08:30 – 10:00</b> Morning plenary	Offices plenary	IAUS 392 plenary	IAUS 393 plenary	IAUS 394 plenary
<b>10:00 – 10:30</b> Morning e-poster & coffee break	Division e-poster	IAUS 392, 393, 394 FM4, FM8, FM9, FM10, WG1, WG2	IAUS 392, 393, 394 FM4, FM8, FM11, FM12, WG3	IAUS 392, 393, 394 FM9, FM10, FM11, FM12, WG6, WG4
<b>10:30 – 12:00</b> Morning oral session	Parallel Division Oral Sessions	S 392-1 S 393-1 S 394-1 WG1-1 WG2-1	FM4-1 FM8-1 FM9-1 FM10-1	S 392-4 S 393-4 S 394-4 WG1-4 WG3-2
<b>12:00 – 13:30</b> Lunch			FM4-4 FM8-4 FM11-1 FM12-1	S 392-7 S 393-7 S 394-7 WG6-1 WG4-1
<b>13:30 – 15:00</b> Afternoon oral session 1	Parallel Division Oral Sessions	Kavli Prize Talk by David Charbonneau	Young Astronomers	FM9-4 FM10-4 FM11-4 FM12-4
<b>15:00 – 15:30</b> Afternoon e-poster & coffee break	Division e-poster	S 392-2 S 393-2 S 394-2 WG1-2 WG2-2	FM4-2 FM8-2 FM9-2 FM10-2	S 392-5 S 393-5 S 394-5 WG2-3 WG3-3
<b>15:30 – 17:00</b> Afternoon oral session 2	9 Parallel Division Oral Sessions	IAUS 392, 393, 394 FM4, FM8, FM9, FM10, WG1, WG2	IAUS 392, 393, 394 FM4, FM8, FM11, FM12, WG3	FM4-5 FM8-5 FM11-2 FM12-2
<b>17:15 – 18:30</b> Afternoon plenary	Gala Dinner	S 392-3 S 393-3 S 394-3 WG1-3 WG3-1	FM4-3 FM8-3 FM9-3 FM10-3	S 392-8 S 393-8 S 394-8 WG6-2 WG4-2
<b>18:30 – 21:30</b> Various		Invited Discourse: Prof Natalie Batalha	Business 2	FM9-5 FM10-5 FM11-5 FM12-5
		Public Talk: Prof George Ellis 18:15 - 19:15		IAUS 392, 393, 394 FM9, FM10, FM11, FM12, WG6, WG4
		Cultural Evening 19:30 - 21:30	The Cosmic Savannah Guest: Nobel Prize winner Prof Brian Schmidt 19:30 - 21:30	S 392-6 S 393-6 S 394-6 WG2-4 WG3-4
				FM4-6 FM8-6 FM11-3 FM12-3
				S 392-9 S 393-9 S 394-9 WG6-3 WG4-3
				FM9-6 FM10-6 FM11-6 FM12-6
				Closing Ceremony Handover

Background: The Milky Way above the ATCA. Image courtesy of E. Lenc.

# Exhibitors



BUSINESS  
EVENTS  
PERTH





# PUBLIC EVENTS

IN PERSON & ONLINE

#astronomy2024

**07 /08** Journey into Space with Astronaut Dr. Sian Proctor

**08 /08** Evening With NASA

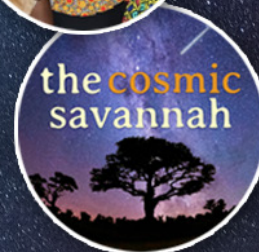
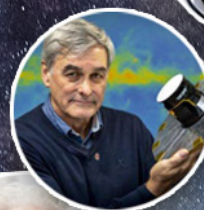
**09 /08** Women in Space Science & Astronomy  
The Milky Way with Prof Gerry Gilmore  
Astronomers Got Talent!

**10 /08** Stargazing at V & A Waterfront

**13 /08** Nature of the Universe with  
Prof George Ellis

**13 /08** #AfricaLookUp Cultural Exchange Evening

**14 /08** The Cosmic Savannah Live Show  
with Nobel Prize Winner Prof Brian Schmidt.



XXXII IAU GENERAL ASSEMBLY

CAPE TOWN, SOUTH AFRICA, 2024

The team behind the design, layout, content writing and editing of the XXXII<sup>nd</sup> IAU GA newsletter includes Patrick Saunders; Guido Schwarz; Laura Hiscott; Maria Stone; Christina Thöne; Shirley Aoko; Gwen Sanderson; Marcelina Kinyumu; Daniel Cunnamo; Susan Caras





# UMnyele weZulu

XXXII  GENERAL ASSEMBLY

6 - 15 AUGUST 2004

Cape Town, South Africa



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