

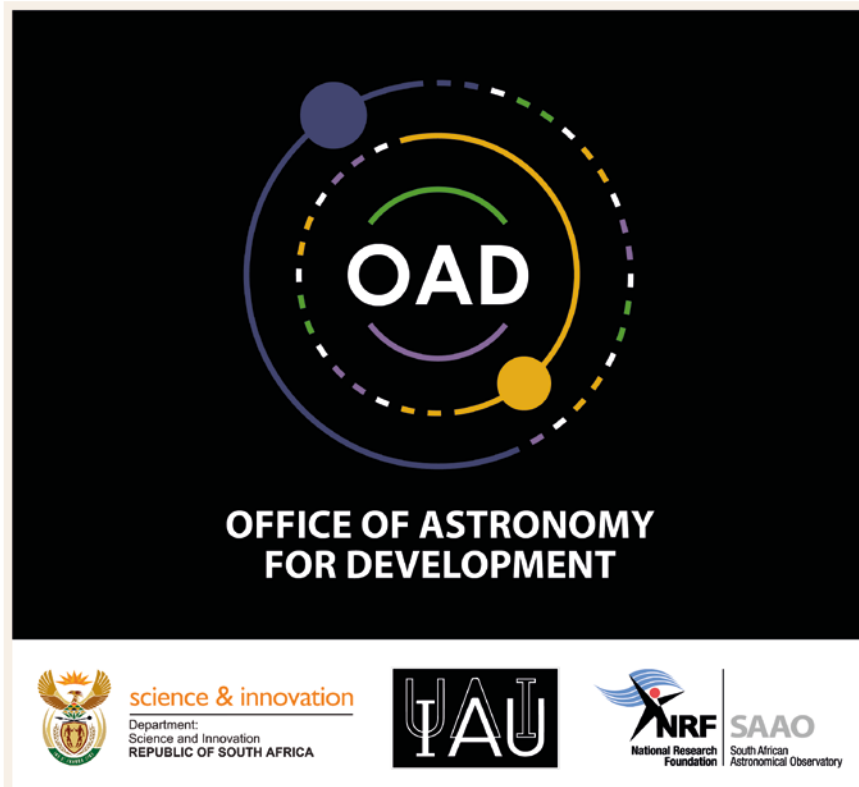


ANNUAL *Report*

**OFFICE OF ASTRONOMY
FOR DEVELOPMENT**

1 April 2019 – 31 March 2020

Cover Image: Dark and clear night skies, in addition to being essential for astronomical observations, are an asset for stimulating livelihood in remote communities and furthering the Sustainable Development Goals. The Astrostays project, an OAD Flagship run in partnership with the Global Himalayan Expedition, capitalizes on this asset to improve the lives of people in remote villages. *(Image credits: Astrostays project/ Global Himalayan Expedition)*





ANNUAL REPORT

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INTRODUCTION

ABOUT US

The Office of Astronomy for Development (OAD) was established with the conviction that astronomy can play a pivotal role in facilitating development. The unique intersection of science, technology, and culture in astronomy provide different perspectives and prisms to tackle many of the issues facing our world today.

The OAD is a joint collaboration of the International Astronomical Union (IAU), the largest professional astronomical society, and the National Research Foundation (NRF) of South Africa, with the strong support of its Department of Science and Innovation. The OAD engages in the pursuit of furthering the United Nations Sustainable Development Goals (SDGs) through its projects, partnerships, collaborations, and astronomy-for-development activities.

The COVID-19 pandemic has had a major effect on the global OAD community in the past few months. Most projects and activities of the OAD and its regional offices have been moved online where

possible or postponed or sometimes cancelled. Since the onset of the pandemic, the OAD has looked at ways in which the astronomy community can play a role in addressing this global crisis or at least help mitigate some of its effects.



You can find more information on the dedicated COVID-19 page on our website:
www.astro4dev.org/covid-19



You can read the IAU statement on the measures taken for COVID-19:
www.iau.org/news/announcements/detail/ann20010

“ASTRONOMY FOR A BETTER WORLD!”

MISSION

The mission of the OAD is to use astronomy, including its practitioners, skills and infrastructures, as a tool for development by mobilizing the human and financial resources necessary in order to realize the field’s scientific, technological and cultural benefits to society.

ASTRONOMY FOR DEVELOPMENT IS ABOUT PEOPLE, NOT THE STARS

There has been plenty of debate on the issue of astronomy for development versus the development of astronomy. While the former is our primary goal at the OAD, we believe that some level of development of the field of astronomy itself can be a stimulant, and in some cases, even a prerequisite to apply astronomy for development. Further, the development, promotion, and safe-guarding of astronomy research, astronomy outreach, education, and capacity-building are the mission of the International Astronomical Union and the OAD’s sister offices – the Office for Astronomy Outreach, Office of Astronomy for Education, and the Office for Young Astronomers respectively.



SCOPE

To use astronomy to stimulate global development, which is framed by the United Nations Sustainable Development Goals. As of 2020, the OAD has supported more than 200 “astronomy-for-development” projects reaching over 90 countries; established 11 regional offices around the world; and registered over 600 volunteers.



PURPOSE

The OAD is a global coordinating centre for “astronomy-for-development”, tasked with coordinating relevant activities around the world as well as establishing and strategically coordinating Regional Offices and Language Expertise Centers.



Pre-COVID, the OAD benefitted from a steady stream of visitors who joined us in Cape Town and contributed for short periods of time. The image above is a snapshot of the team in May 2019.

INTRODUCTION

OAD TEAM

The OAD has a core team based in Cape Town, complemented by a number of visitors from around the globe (interns, volunteers, fellows, researchers) who contribute on various projects.

If you want to explore an idea, contribute remotely or simply want to discuss and learn more about astronomy for development, drop us a line at info@astro4dev.org.



KEVIN GOVENDER
DIRECTOR



VANESSA MCBRIDE
ASTRONOMER



RAMASAMY VENUGOPAL
OPERATIONS MANAGER



NUHAAH SOLOMON
ADMINISTRATION OFFICER

THE FOLLOWING PEOPLE CONTRIBUTED IN VARIOUS CAPACITIES DURING 2019–20:



TAWANDA CHINGOZHA
DEVELOPMENT ECONOMIST

VISITING FELLOW

Focus: Sustainable development, interactions between natural and social scientists



AMIDOU SORGHO
ASTRONOMER

VISITING FELLOW

Focus: Flagship project on sustainable, local, socio-economic development through small astronomical facilities



MARIE KORSAGA
ASTRONOMER

VISITING FELLOW

Focus: Contributions and roles of astronomy and other non-medical sciences in the fight against COVID-19



NIKHITA MADHANPALL
ASTRONOMER

DARA-OAD BIG DATA FELLOW

Focus: Big data for development, Flagship project on Knowledge and Skills for Development



AMELIA HENKEL
ASTRONOMY & HUMAN RIGHTS STUDENT

VISITING FELLOW

Focus: Flagship project on Science Diplomacy through Astronomy



ANNIKA MÜLLER
DESIGNER

VOLUNTEER

Focus: Graphic design



ESTEFANY SAN ANDRES H.
SOCIO CULTURAL ANTHROPOLOGIST

VOLUNTEER

Focus: Social impact, gender-ethnic inclusion



JANE CHOI
ANTHROPOLOGY/BUSINESS

VOLUNTEER

Focus: OAD online courses



MUNIRA HOOSAIN
ASTROPHYSICS STUDENT

VOLUNTEER

Focus: volunteering during the International Science for Development workshop 2020



ASMA SAHLI
ASTROPHYSICS STUDENT

INTERN

Focus: Astronomy and space camps



ANKE VAN DYK
ASTROPHYSICS STUDENT

INTERN

Focus: OAD logistics



TEBOHO MOLOI
ASTROPHYSICS STUDENT

INTERN

Focus: OAD volunteer portal



OVERVIEW

PARTNERSHIPS

The OAD works with partners from various fields to achieve its mission of 'Astronomy for a Better World'. Our partnerships which were active or established in the reporting period are listed below:

DEVELOPMENT OF AFRICA THROUGH RADIO ASTRONOMY (DARA)

DARA is a joint UK - South Africa Newton funded project that uses radio astronomy training to develop high level technical skills in young graduates. The partnership with the OAD is an implementation of the astronomy-for-development concept and involves collaboration at both strategy and project evaluation levels.

Every year the DARA cohorts from the SKA (Square Kilometer Array) partner countries propose astronomy-for-development projects that are funded through DARA. The OAD engages with the DARA cohorts at their annual network meeting by providing a workshop on Astronomy for Development. The OAD also evaluates the student proposals, and coaches them in their project implementations. In 2019, the focus was on projects that had the potential to be economically sustainable.



Some of the products of the *Craft radio telescopes* project funded by DARA in Madagascar.

➔ Craft radio telescopes in Madagascar

This project aimed to highlight astronomy as a growing science in Madagascar through the promotion and sale of handcrafted or woven radio telescope models.

➔ Sensitization of the use of experimental practices in the teaching-learning process through radio astronomy in Mozambique

The aim is to manufacture and supply simple and affordable laboratory equipment to secondary schools in Maputo.

➔ M87 astro-tourism and conservation awareness in Kenya

This project focused on the domestic tourism sector to offer an astro-tourism product in Kenya.

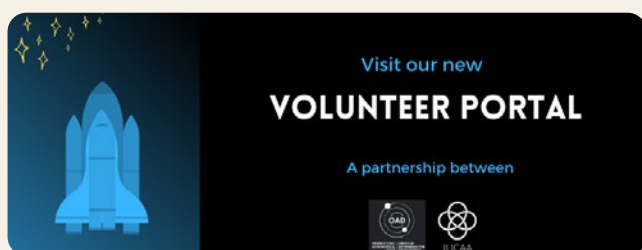
www.dara-project.org

INTER-UNIVERSITY CENTRE FOR ASTRONOMY AND ASTRO-PHYSICS (IUCAA)

IUCAA is one of the leading research institutes in astronomy/astrophysics globally. It also has a renowned programme of public outreach and education (SciPop). This partnership with the OAD paves the way for specific collaborations in capacity development along with education, development and outreach.

www.scipop.iucaa.in

The OAD, in partnership with IUCAA, has launched a volunteer portal where tasks related to the work of the IAU and its offices are advertised. Anyone from anywhere in the world can browse the portal and apply to volunteer on specific tasks of the OAD, its Regional Offices, other IAU offices, and our project teams.



You can also sign up to our Volunteers mailing list to receive a monthly digest of active tasks.

www.astro4dev.org/volunteers

SPACE GENERATION ADVISORY COUNCIL (SGAC)

SGAC in support of the United Nations Programme on Space Applications is a global, non-governmental, non-profit (US 501(c)3) organisation and network which aims to represent university students and young space professionals aged 18–35 to the United

Nations, space agencies, industry, and academia. Both OAD and SGAC have common goals in strengthening global networks in space and astronomy and developing capacity in STEM fields.

www.spacegeneration.org

RESEARCH ON SOCIO-ECONOMIC POLICY (RESEP), STELLENBOSCH UNIVERSITY

The OAD has an ongoing partnership with the RESEP group to take advantage of skills and expertise in development. RESEP has a long-term research focus on issues of poverty, income distribution, social mobility, economic development and social policy.

www.resep.sun.ac.za

ROYAL ASTRONOMICAL SOCIETY (RAS)

RAS encourages and promotes the study of astronomy, solar-system science, geophysics and closely related branches of science.

Every year, the RAS commits funding for mobility with the goal of establishing or nurturing research, educational and/or development related collaborations between the United Kingdom (UK) and countries where astronomy research is not well established. The call process is managed by the OAD, while the grants are disbursed directly by the RAS.

www.ras.ac.uk

www.astro4dev.org/partners-programs/rasexperts2

In 2019, around GBP 5000 was disbursed to the following projects:

- ➔ Aishawnyya Sharma (Inter-University Centre for Astronomy and Astrophysics, India) received funding to visit Prof. Robertus von Fay-Siebenburgen (University of Sheffield, UK) to work on a research project on waves in the solar corona.
- ➔ Clara Marie Pennock (University of Keele, UK) used the award on a visit to India, hosted by Annapurni Subramanian (Indian Institute of Astrophysics). The project is titled "Machine learning for the masses. Astronomy for the young" and has both a research and educational component. The research work looked at extragalactic studies using India's Astrosat/UVIT, while the educational component looked at both an introduction to the basics of machine learning and an art and astronomy outreach activity.
- ➔ Tsolmon Renchin (National University of Mongolia) visited Edward Gomez (Cardiff University, UK) to work on developing a curriculum for postgraduate studies in astrophysics at the

National University of Mongolia. She will also translate some of the key teaching and outreach resources in astronomy for use in Mongolia.

- Dimitris Stamatellos (University of Central Lancashire, UK) was hosted by Le Mihn Tan (Tan Nguyen University, Vietnam) on a visit to Vietnam. The visit saw the initiation of final year undergraduate research projects in astronomy as well as a one week lecture series in astronomy. The aim of the collaboration was to stimulate interest in STEM careers, especially astronomy, for students in Vietnam.

- Sohan Jheeta (Science Communication Ltd, UK) was hosted on a visit to Kitwe, Zambia by Prosperity Simpemba (Copperbelt University, Zambia). The aim of the visit was to make astronomy accessible to a wider audience through lectures to university, college and school students. This visit also built on the interaction of Copperbelt University with various remotely operable telescopes.



INTERNATIONAL SCIENCE COUNCIL: REGIONAL OFFICE FOR AFRICA

The OAD partnered with the International Science Council's Regional Office for Africa (ISC ROA) and co-hosted an event in January 2020 on "Science for Development". It was attended by around 100 participants from across Africa and abroad (including OAD regional offices), from a diverse range of fields including biology, astronomy, agriculture, energy, environment, computer science, geology, education, engineering, management, public health, economics, neuroscience, psychology and more. The workshop aimed to stimulate collaborations and lead to the development of science-for-development projects, which apply the tools and methods of science and technology to solve local, regional, and global challenges. Other partners involved include: South African Institute of Physics, Inter-university Institute for Data Intensive Astronomy, DataFirst, Human Sciences Research Council, Academy of Science of South Africa, South African Radio Astronomy Observatory, Cosmopolitan Karoo, Research on Socio-Economic Policy at University of Stellenbosch, University of Cape Town, University of Western Cape, African Astronomical Society, Centre for High Performance Computing, South African Space Agency, DARA Big Data.

www.science4dev.org

DARA BIG DATA

Since January 2020, the OAD has partnered with the DARA Big Data project through a fellowship, to develop and support hackathons in the SKA partner countries. DARA Big Data is funded by the

United Kingdom Newton Fund via the Science & Technologies Facilities Council, and aims to develop big data skills using radio astronomy, agriculture and medical applications.

Dr Nikhita Madhanpall is the current OAD DARA Big Data fellow. Her position focuses on creating 'astronomy for development' hackathons, running these workshops in the partner countries, and cementing the links between DARA Big Data (based at the University of Manchester), the Inter-University Institute for Data-Intensive Astronomy (IDIA), which provides the platform for the big data training, and the OAD.

www.darabigdata.com

INTER-UNIVERSITY INSTITUTE FOR DATA INTENSIVE ASTRONOMY

The overarching goal of the Inter-University Institute For Data Intensive Astronomy (IDIA) is to build the capacity and expertise in data intensive research within the South African university research community and enable global leadership on MeerKAT large survey science projects. Both the OAD and IDIA have a strong skills development and training agenda. The purpose of this collaboration is to bring together the complementary resources and expertise of IDIA and of the OAD in the context of the DARA Big Data Fellowship to facilitate and grow data-intensive research skills development in South Africa and in the African VLBI Network partner countries.

www.idia.ac.za




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PUBLICATIONS

ASTRONOMY, SCIENCE, GLOBAL DEVELOPMENT, AND COVID-19

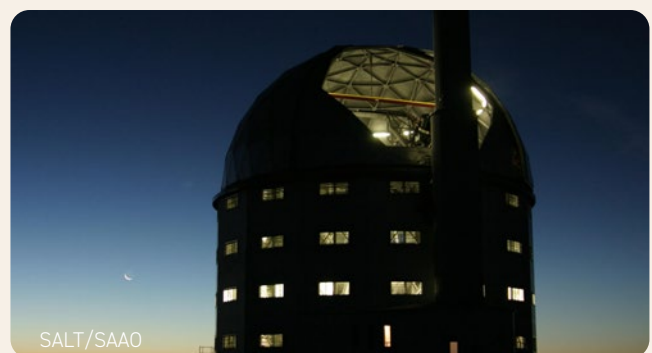
The COVID-19 pandemic and its global impacts has become the biggest crisis our world has experienced. The OAD staff, Regional Offices, and other stakeholders have been committing resources to this crisis, tackling it from the perspective of astronomy, science, and development. The OAD appointed a fellow, Dr Marie Korsaga, to look at how astronomy and a number of other fields unrelated to infectious diseases, are stepping up to play a role in this fight against COVID-19. Her ongoing research can be viewed on the OAD website. Meanwhile, OAD development economist fellow, Dr. Tawanda Chingozha, has been grappling with questions on the socio-economic impacts and the role of natural scientists in this crisis.


 More information on COVID-19 related resources:
www.astro4dev.org/covid-19

IMPACT OF ASTRONOMICAL FACILITIES ON LOCAL DEVELOPMENT - PERSPECTIVES FROM SUTHERLAND

Members of the OAD team, including expert visitors, carried out a special project assessing the impact of the South African

Astronomical Observatory on the nearby community. Through interviews and focus group discussions, the team engaged with the communities targeted by the observatory's programs. The aim of this exercise was to find ways to reproduce such benefits at other observatories as well as investigate ways in which the programme can be improved.



 Report of the study:
www.astro4dev.org/blog/2020/07/22/impact-of-astronomical-facilities-on-local-development

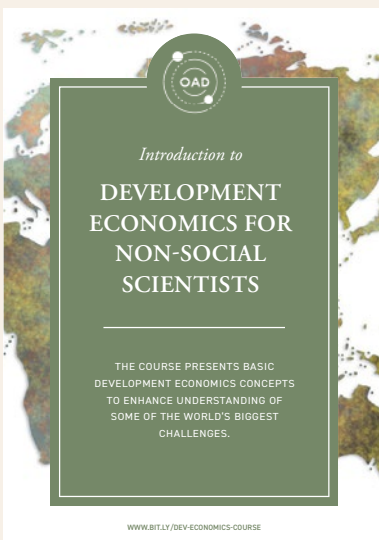


CAP JOURNAL

The OAD worked with the IAU Office for Astronomy Outreach on a special issue of the Communicating Astronomy with the Public (CAP) Journal. With the theme of astronomy-for-development, the special issue covers some of the creative and effective outreach projects and strategies employed by the global astronomy community to stimulate development. These include interventions which use astronomy to improve inclusion and gender equality, stimulate economies with astrotourism, reduce light pollution, promote education and tolerance, and more.

CAP Journal, special edition on Astronomy for Development (free to download or read online):

www.capjournal.org/issues/27



SHORT COURSE: INTRODUCTION TO DEVELOPMENT ECONOMICS FOR NON SOCIAL SCIENTISTS

A short course on 'Introduction to Development Economics for non social scientists' has been launched by the OAD, created by Dr Tawanda Chingozha, a development economist. The purpose of this course is to impart some basic development economics knowledge for non-social scientists to equip them better to employ their skills for development.

Short Course:

www.astro4dev.org/introduction-to-development-economics-short-course



PROJECTS HIGHLIGHTS BOOKLET 2020

OAD published a booklet highlighting some of its funded projects which can serve as examples of science furthering global development.

Astro4Dev Project Highlights 2020:

cloudcape.saaao.ac.za/index.php/s/pFplDvOKQmPT0G2



The Sonic Orbiter arcade game was developed by the SYSTEM Sounds science-art project supported by the OAD. More information at: www.system-sounds.com (Image credits: SYSTEM Sounds)

REPORT

PROJECTS AND ACTIVITIES

PROJECTS FUNDED 2020

Every year, the OAD solicits ideas that apply astronomy in various ways to create a positive impact on society. Proposals are invited from anyone, anywhere in the world regardless of background in astronomy.

In fact, interdisciplinary teams are encouraged, especially team members and partners with development expertise/experience. The next call for proposals will be announced in April 2021.

Seventeen projects were funded through the annual call concluded in 2019 and granted a total of 110,834 euros. Although in-person project activities are on hold due to COVID-19, some of the project teams are organizing online events to continue engagement during this time. Some projects are also supporting their communities in this difficult time, aided by small grants under the "Extraordinary Call for COVID-19 related proposals".



More information on the Extraordinary Call at:

www.bit.ly/covid-astro

PROJECTS FUNDED 2020 (IN ALPHABETICAL ORDER):

- 01 AD ASTRA ACADEMY 2020, Brazil

- 02 ASTRONOMY FOR CANADIAN INDIGENOUS PEOPLE 2020, Canada

- 03 ASTRO MOLO MHLABA 2020, South Africa

- 04 COSMOAMAUTAS: TRAINING TEACHERS IN RURAL AREAS, Peru

- 05 EAST AFRICA SCHOOL OF ASTRONOMY, East African countries

- 06 HANDS-ON ASTRONOMY CURRICULUM TRAINING FOR PRIMARY AND SECONDARY SCHOOL TEACHERS, Nigeria

- 07 IDP CHILDREN'S ASTRONOMY OUTREACH 2020, Nigeria

- 08 KATHMANDU ASTROPHYSICS SCHOOL 2020, Nepal

- 09 LAMPS: LEVERAGING LOCAL ASTRONOMY SITE TO PROMOTE STEM, Madagascar

- 10 NETWORKING AND SKILLING IN ASTRONOMY, Senegal

- 11 OTHER SKIES: DIALOGUES OF DIFFERENT COSMOLOGICAL PARADIGMS, Brazil

- 12 PALE BLUE DOT - A UNIVERSE AWARENESS PROJECT

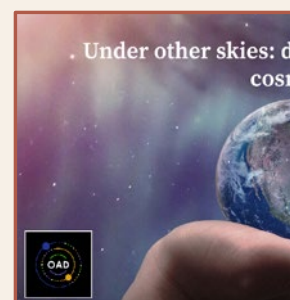
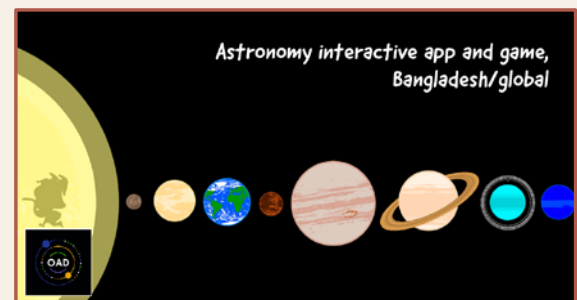
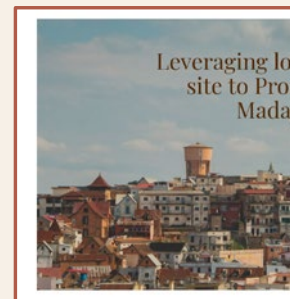
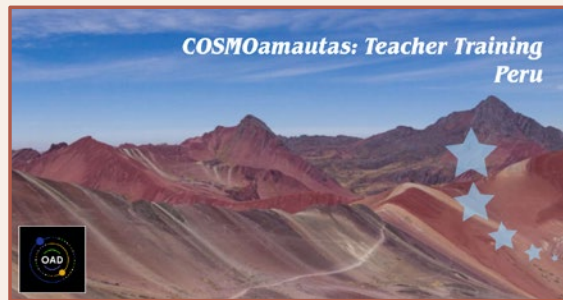
- 13 POTHIKRIT: ASTRONOMY FOR STUDENTS THROUGH INTERACTIVE APP, Bangladesh/global

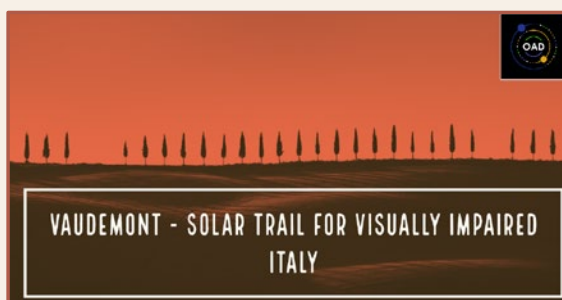
- 14 SHE SPEAKS SCIENCE, Lebanon/UK/online

- 15 THE ART OF LEARNING ASTRONOMY, Philippines

- 16 TELESCOPES FOR SIBERIAN VILLAGES, Russia


- 17 VAUDEMONT - SOLAR TRAIL FOR VISUALLY IMPAIRED, Italy





UPDATES FROM OAD PROJECTS

The OAD funded 20 projects in 2019 and 17 projects in 2020. We present here highlights from project activities that were carried out during the reporting period, prior to COVID-19.

 For regular updates, follow us on social media:
[f astro4dev](#) [t Astro4Dev](#)

 Explore OAD funded projects:
www.astro4dev.org/projects-search



IDP CHILDREN'S ASTRONOMY OUTREACH, Nigeria

A team of scientists and communicators from Astronomers Without Borders Nigeria, together with seasoned counsellors, conducted an intervention last year targeted at children living in a camp for Internally Displaced Persons. The project employed an interdisciplinary approach combining counseling and astronomy activities to heal and inspire the children. Astronomy was used due to its huge popular appeal and potential to act as a gateway to further learning.

The team also set up a solar powered learning hub with a smart screen, HD-drive, internet router and charging ports, all

in a refurbished shipping container. The learning hub provides access to educational materials for children at the camp, and allows the project team to continue their engagements remotely. A post-intervention followup determined a measurable reduction of anxiety, stress and depression in a sample population. Plans are underway to implement a similar model at other camps in the country.

The project team is currently supporting the camp inhabitants in their fight against COVID-19.

www.awbnigeria.org/report-idp-cao-covid-intervention



AMANAR, Algeria and Spain

The Amanar project aims to promote quality science education and support the youth and the teachers from the Sahrawi refugee camps near Tindouf, Algeria. It aims to enhance both their resilience and engagement in the community through skills development and self-empowerment activities. It is organised by GalileoMobile, in collaboration with the Instituto de Astrofísica de Canarias and the Canary Association of Friendship with the Sahrawi People.

In 2019, the project organized astronomy outreach activities and visits to professional observatories for the refugee

children spending the summer in the Canary Islands, within the Holidays in Peace program. Later, scientists and experts visited the Sahrawi refugee camps running astronomy educational interventions and teacher workshops in primary and secondary schools.

In the long term, the project wants to raise awareness of the harsh conditions of the Sahrawi refugees and foster a sense of global citizenship through astronomy for the Sahrawis, a community that has been in its current situation for more than 40 years.

www.go.nature.com/33c1mzX

ASTROLAB, Southern Africa

Astrolab is a low cost research tutorial for universities in need of astronomy infrastructure and curriculum. Astrolab uses remote telescopes accessible over the internet to teach students the primary steps involved in astronomy research and the scientific method – observation, image acquisition, processing, data analysis and writing up results. Students plan and perform real-time observations with these robotic telescopes and transform those observations into a scientific result under the guidance of tutors.

The OAD has supported the organization of Astrolab workshops and training in several African countries. The latest Astrolab project consolidated the resources and expertise by creating an online repository and establishing a network of individuals and institutions around Africa. Contact us at info@astro4dev.org for more information and to join the Astrolab network.

CLEAR SKIES, India

The primary objective of the project was to encourage rational thinking and inculcate scientific temper in students in India while dispelling superstition. Astronomy was used as a tool since it incorporates various disciplines in science. Regular activities were organized throughout the year with lectures, workshops, and hands-on activities to discuss scientific phenomena and debunk myths.

www.clearskies2019.wordpress.com



SYSTEM SOUNDS, Canada and global

SYSTEM Sounds is a sci-art outreach project that converts the rhythm and harmony of the cosmos into music and sound. In 2019, the project engaged the general public through exhibits, public talks, and online videos. As part of an artist residency with the Ontario Science Centre (OSC) and the Museum of Contemporary Art (MoCA), the team created and exhibited the Sonic Orbiter, an arcade-style game in which users explore the surface of the Moon through sound. This was exhibited alongside public talks at the Aga Khan museum and the OSC where it is now a permanent exhibit. Three sonification videos were also produced which were featured in dozens of online publications. The video showing the discovery of 4000 exoplanets was selected as NASA's Astronomy Picture of the Day and was viewed over 1 million times! The project inspired awe and wonder in a diverse audience by involving them in a sonic exploration of the universe.

www.system-sounds.com

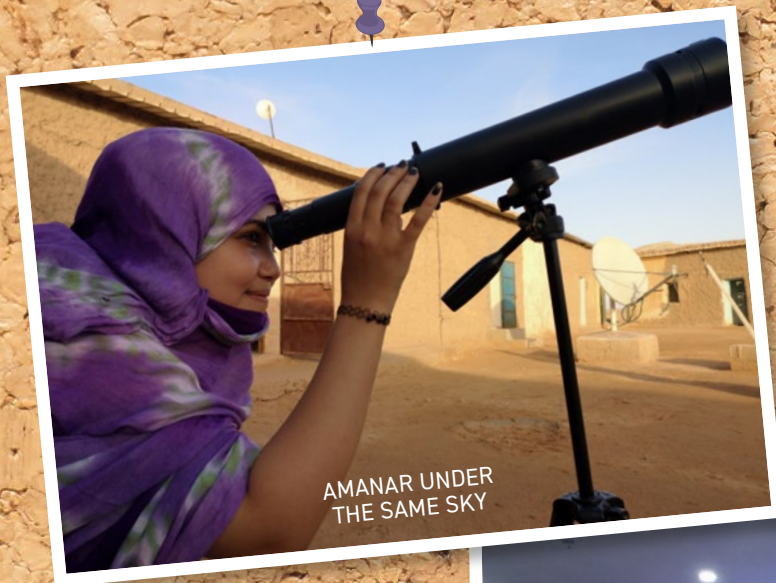


UNDER THE SAME SKY, Liberia

The project organized a 6-day workshop for 61 science teachers in Monrovia, Liberia. The educational system, as one of the key drivers for social and economic development, is in a devastating condition after two civil wars and the Ebola crisis. So the aim was to support the teachers with basic astronomy knowledge and classroom experiments to use astronomy as a gateway to scientific literacy. Overall, the workshop received broadly positive feedback from participants and stakeholders.

www.2hnet.jimdofree.com





AMANAR UNDER THE SAME SKY



TEACHER TRAINING, MONGOLIA



ASTRONOMY FOR CANADIAN INDIGENOUS PEOPLE



BEHOLD THE SKY, BRAZIL



FLAGSHIP PROJECTS

Flagships are large-scale, astronomy-for-development projects which are seen as an effective means of achieving significant impact over a substantial part of the world. The OAD is currently developing 3 Flagship themes under which we envision various projects.



SUSTAINABLE, LOCAL SOCIO-ECONOMIC DEVELOPMENT THROUGH ASTRONOMY

This flagship aims to use an astronomical facility, such as an observatory or planetarium, as a “hub” to stimulate various associated socio-economic benefits for the local community. Benefits could include job creation through astronomy-related tourism; community skills development; educational programmes; stimulation of local innovation and infrastructure development.



OAD fellow Dr Amidou Sorgho, has completed the groundwork for this flagship, developing a document with background information, lessons learned from past projects, and guidelines for anyone planning to run interventions

under this program. It includes guidelines on conducting a needs assessment of the community, surveys and analyses, community engagement, project monitoring, evaluation and more.

Under this flagship, the OAD has partnered with the Global Himalayan Expedition, a social enterprise based in India, on the Astrostays project. The aim of this project is to stimulate local livelihood generation and economic development in remote communities by leveraging tourism and astronomy.



Flagship 1 theme website:

www.bit.ly/oad-flagship1



Be inspired by the story of a young astronomy enthusiast in a remote Indian village whose life has been changed by the Astrostays project. Stanzin Dolkar is reaching for the stars while breaking gender stereotypes.

www.voicesofruralindia.org/reaching-for-the-stars-literally

www.youtube.com/watch?v=0gIBH61uKvo



SCIENCE DIPLOMACY THROUGH ASTRONOMY: CELEBRATING OUR COMMON HUMANITY

The second flagship aims to use the universal perspective provided by astronomy and the beauty and scale of the universe to positively influence how people interact with their fellow human beings, and our planet. Astronomer Carl Sagan famously described the earth as a "pale blue dot" and the need for us to cherish everyone and everything on the planet. This project aims to take the inspiring potential of astronomy and use it to stimulate a sense of tolerance and common humanity in all parts of the world.

OAD fellow Amelia Henkel completed the literature review and consolidated evidence for this flagship and a plan for implementation. This flagship aligns very well with the objectives of the European Office of Astronomy for Development. Hence, the OAD is working closely with the European Regional Office on this flagship.



Flagship 2 theme website:

www.astro4dev.org/science-diplomacy-through-astronomy-celebrating-our-common-humanity



Project website:

www.astro4dev.eu/projects/pale-blue-dot



KNOWLEDGE AND SKILLS FOR DEVELOPMENT

This flagship focuses on the use of astronomical knowledge, and skills used in astronomy to tackle development challenges. This includes methods, techniques widely used in the field including data handling, data analysis, machine learning as well as the necessary compute facilities. Projects under the Flagship may be executed in the form of advanced educational programmes, hackathons, competitions or other original interventions that focus on knowledge transfer and/or applying these skills towards development problems.

Flagship 3 is led by OAD-DARA Big Data fellow Dr Nikhita Madhanpall. She is working with Development in Africa with Radio Astronomy and the Inter-University Institute for Data Intensive Astronomy to develop and implement data science and machine learning hackathons to enable data-intensive research skills development in South Africa and in other African countries.



Flagship 3 theme website:

www.astro4dev.org/flagship-on-knowledge-and-skills-for-development



Participants at the international Science for Development workshop in Cape Town. (Image credits: Kate Meredith/OAD)

REPORT

EVENT HIGHLIGHTS

SCIENCE 4 DEVELOPMENT: BUILDING BRIDGES ACROSS DISCIPLINES



The Science for Development Workshop was organized on 30–31 January 2020 in Cape Town, hosted by the Office of Astronomy for Development and the International Science Council’s Regional Office for Africa and supported by the Department of Science and Innovation and the National Research Foundation, as well as several other partners. It brought together researchers, industry leaders and communicators from across disciplines and

across the world. The experimental workshop aimed to stimulate conversations and collaborations to find ways that science can effectively aid in socio-economic development. The workshop was held right after the OAD’s face-to-face meeting of regional offices, which meant that representatives from ROADs and LOADs were able to stay for a taste of the cross disciplinary dialogue.

It featured several talks and panel discussions and provided space to create practical solutions and projects that could be taken forward through un-conference sessions. Several themes emerged – particularly within the workshop’s focus on Africa. These included encouraging participants to interrogate how their research is relevant in people’s lives, some of the major challenges facing the developing world, particularly in the context of the global climate crisis and the lack of data on development,

and how to ensure that projects are developed in collaboration with the communities affected so that scientists are not imposing themselves on issues they don't fully understand.

The workshop also offered seed funding for a cross disciplinary project that addressed some of the themes discussed above. The winning project was a proposed multi-disciplinary postgraduate course on "Science for Development", aimed at engaging science students in an understanding of the bigger picture of development,

familiarity with development concepts and practices, and an ability to translate their science skills into a broader sustainable development context. The course would be presented at Honours level, at the University of the Western Cape, and the project is led by Assoc. Prof. Dr. Carolina Odman of the Inter-University Institute for Data Intensive Astronomy.



More information:

www.science4dev.org

IAU-SHAW ASTRONOMY FOR EDUCATION WORKSHOP

The Shaw Foundation sponsored an IAU workshop on "Astronomy for Education" held from 17 to 19 December 2019, at the Institute Astrophysique de Paris.

The aim of the workshop was to establish a solid foundation for a global collaborative network through a broad and inclusive IAU Office of Astronomy for Education (OAE), a new sister office of the OAD. Almost 50 participants from 26 countries were present, including OAD director Kevin Govender. The Director and Deputy

Director of the OAE presented the strategy for the new office, with a view of achieving the goals expressed in the IAU Strategic Plan for 2020–2030. An agreement instituting the OAE was signed between the IAU and the Max Planck Institute for Astronomy. The OAE is located in Haus der Astronomie (HdA), an astronomy centre based in Heidelberg, Germany.



More information:

www.iau.org/news/announcements/detail/ann19071



Participants of the 1st IAU–Shaw Workshop are witnessing the signing of the IAU Office of Astronomy for Education agreement.
(Image credits: IAU/A. Gustin)

KAROO FUTURES

The OAD provides a space for dialogue and collaboration between natural and social scientists, so it was a natural host for the Karoo Futures symposium held on 21 November 2019 at the South African Astronomical Observatory.



The poster features a windmill against a starry night sky. The text on the poster includes:

Karoo Futures
Astronomy & its impacts

DATE
21 November 2019
8:30am - 1:30pm
Light lunch included

VENUE
Auditorium,
South African
Astronomical Observatory
<http://bit.ly/findOAD>

REGISTRATION
Compulsory but free
Please register at
www.astro4dev.org/karoo-futures/

COSMOPOLITAN KAROO
SUSTAINABLE DEVELOPMENT

INTERNATIONAL ASTRONOMICAL UNION | OFFICE OF ASTRONOMY FOR DEVELOPMENT

OAD

The symposium was held to mark the launch of a special issue of the *Journal of Southern African Studies* on 'Karoo Futures: Astronomy in place and space' and to encourage dialogue between astronomers and researchers in the social sciences and humanities.

Much of the focus was around the role of the Square Kilometre Array in the Karoo region of South Africa, and there was lively discussion and debate around research methodology in the humanities, as compared to natural science.

Some of the questions for further debate that came out of these discussions were:

- While marginalized views are important, how does one account for the prevalence of such views (especially in reporting of those views), and what other perspectives are also important for effective policy-making?
- Understandings of "development" are likely to change with time across different levels (local, national and international), what will we see of current priorities when we look back in a decade?
- What is the meaning of objectivity (noting that the starting point for some scholars is that there is no single truth but, rather, different ways of depicting and exploring what is considered reality)?
- Can social scientists play a role both in communicating science (which is urgently needed) and critiquing the science project itself? How can a constructive dialogue around this be maintained?
- Given the aspirational dimensions of a big science project such as SKA, might it allow alternate views of identity in the Karoo and South Africa to emerge and thereby contribute to building greater social cohesion?

Overall, participants developed a better understanding of the scope, challenges and research motivations of both the implementers of the SKA project and the social science researchers.



More information:

www.astro4dev.org/karoo-futures

GENDER GAP IN SCIENCE

It's a well known fact that women are underrepresented in science (UNESCO Fact Sheet 55, 2019), and that the representation of women decreases with increasing seniority.

In 2017, a number of ISC (International Science Council) affiliated unions, including the IAU, joined forces to take a three-pronged approach to understanding this under-representation. The **Gender Gap in Science project** included a global survey of women in science, a database of good practices and data-backed study of publication patterns. This approach is one of many interventions driving equality in the STEM (Science, Technology, Engineering, Mathematics) fields, such as UNESCO's STEM And Gender Advancement (SAGA) project, and the Gender inSITE project.

The preliminary results of the global survey were presented at a workshop at the International Centre for Theoretical Physics in Trieste, Italy from 4–7 November 2019 and was attended by Dr

Vanessa McBride from the OAD. Most participants in the workshop were women, both junior and senior, from countries across the world. To a large extent, the survey corroborates what is already known, i.e. that women's experience in the scientific workplace is less positive than men's experiences. But the survey also put numbers to some generally unspoken truths, for example the survey finds that women are 14 times more likely than men to be personally harassed at work.

The challenge now, as framed by Lakshmi Puri (UN Women Deputy Executive Director) a few years ago is to understand that "Gender equality is everyone's business". This involves taking active rather than passive roles in transforming our STEM workplaces, but also our society more broadly.



The final report is available here:

www.zenodo.org/record/3882609

Conference on Global Approach to the Gender Gap in Mathematical, Computing and Natural Sciences: How to Measure It, How to Reduce It?

4- 8 November 2019, Miramare - Trieste, Italy



The Abdus Salam
International Centre
for Theoretical Physics



AFRICAN ASTRONOMICAL SOCIETY SCIENCE BUSINESS MEETING

The African Astronomical Society (AfAS) is a pan-African professional society of astronomers. The society was re-established at the Astronomy in Africa business meeting, held in Cape Town at the South African Astronomical Observatory on 25–26 March 2019.

The OAD has been actively involved in the African Astronomical Society through facilitating the above meeting, and through the influence of the three Regional Offices on the African continent. AfAS held a Science Business Meeting in Addis Ababa, Ethiopia, on 10–11 October 2019, that was attended by about 30 delegates from Africa and the diaspora, and co-facilitated by OAD Director Kevin Govender. The meeting was held alongside IAU Symposium

356, with a goal of getting feedback and input from the IAUS356 delegates on such discussions, given their deep and broad backgrounds. The opportunity was also used to introduce more professional astronomers to the society, and recruit more members to the Science Committee.

The meeting established a vision for the science committee of “An interlinked and world class African astronomy community contributing to the advancement of human knowledge” and a mission “To advance astronomy through the development of strategies, facilitation of interdisciplinary collaborations, encouragement of cross border engagements, and stimulation of human capital development.”

DEVELOPMENT AROUND THE AFRICA MILLIMETRE TELESCOPE IN NAMIBIA

Conceptualization and planning is underway to build a millimetre telescope in Namibia – the Africa Millimetre Telescope (AMT). This would form a very valuable baseline in the Event Horizon Telescope that recently imaged a black hole, but would also be able to expand astronomy in Namibia from the high energies (H.E.S.S) into the millimetre waveband.

Part of the conceptualisation process involves thinking about socioeconomic impacts of the project. The team, led by Radboud University (Netherlands) and University of Namibia held a workshop in Windhoek on 19–20 September 2019 to bring together new and existing stakeholders in education and socioeconomic development in Namibia and beyond.

Dr Tawanda Chingozha and Dr Vanessa McBride from the OAD attended the event to gain an understanding of the situation regarding education and development. A partnership is being forged between the Rössing Foundation in Namibia, and the Netherlands to take a mobile planetarium to most schools in Namibia over the next few years. There are other potential impacts for the AMT, which include astro-tourism through dark skies exploration as well as academic-industry partnerships that will be required to build the telescope, and can potentially have broader impact on industry in Namibia. This workshop will be followed up with further engagement around the AMT.

SOUTH AFRICA-CHINA ASTRONOMY BILATERAL MEETING



Kevin Govender attended the South Africa-China Astronomy Bilateral meeting in Shanghai in June 2019, organised by the Department of Science & Innovation, where he was also able to use the opportunity to discuss the future of the IAU OAD East Asian Regional Office/Chinese Language Expertise Centre with relevant stakeholders.

Part of this meeting was a workshop on Astronomy for Development, during which delegates travelled to Xinchang, where a special planetarium and science museum themed "Astronomy & Society Development" was opened. It was stated that this museum had been inspired by the work of the OAD.

INTERNATIONAL SCIENCE COUNCIL AFRICA SCIENCE SEMINAR

In advance of the 3rd meeting of the International Science Council's Regional Office for Africa, a science seminar was held with the theme: "Being the Global Voice for Science – The ISC Scientific Agenda". iThemba LABS near Stellenbosch, South Africa hosted the event on 21 August 2019.

The OAD had an exhibition stand at the event and gave an address entitled "Big Data, Astronomy for Development and cross-

disciplinary research". Other speakers at the event included, Prof. Daya Reddy (president of the ISC), Dr Daniel Nyanganyura & Ms Nomasomi Gasa (ISC ROA), and Dr Rudzani Nemutudi (iThemba LABS).

The science seminar was attended by the ISC council for Africa, and followed by a tour of the facilities at iThemba LABS.

SOL PLAATJE HACKATHON



A hackathon organised by the Inter-University Institute for Data Intensive Astronomy took place over two days at the Sol Plaatje University in Kimberley, South Africa. The goal of the hackathon was to encourage the use of the ilifu* cloud for data intensive

research at Sol Plaatje. Three of the DARA Big Data hack projects were offered as a way to expose students and staff to a variety of machine learning techniques that make use of powerful computing, as a way to encourage students to make use of ilifu for their own Honours or Masters research.

The OAD attended and helped to facilitate this hackathon as part of the Flagship theme 3 on Knowledge and Skills for Development.

**Ilifu is a regional node, known as a Tier II node, in a national infrastructure, and partly funded by the Department of Science and Innovation through their Data-Intensive Research Initiative of South Africa. It brings together the existing infrastructure and expertise of the six partner institutions to create a regional hub for data-intensive research*

OTHER EVENTS



DARA Network Meeting 3-5 June 2019, Muldersdrift, Johannesburg (Credits: DARA)



OAD staff were invited to present at the headquarters of the **South African National Research Foundation (NRF)** in Pretoria on "Astronomy, Africa & Development". The NRF jointly funds the OAD together with the IAU. (Credits: OAD)



Kevin Govender attended the **Innovation Bridge/ Science Forum South Africa** event in Pretoria in December 2019. This annual event hosted by the Minister of Science and Technology brings together stakeholders from all the sciences and is an excellent opportunity both for networking and keeping track of what other sciences are contributing to development. (Credits: DSI)

OAD Director, Kevin Govender, joined the **4th West African International Summer School for Young Astronomers** during his recent visit to Nigeria. The school aims to contribute to building a critical mass of astronomers and future scientific leaders in West Africa, and exchange ideas about teaching and learning across continents. (Credits: WAISSYA)



Govender presented a talk on the OAD and Astronomy in Africa at the **SKA Africa Ministers Meeting** in Pretoria in October 2019. This is a regular meeting of Science Ministers and delegations from SKA/AVN African Partner Countries. This time no Ministers were available though, so the meeting was only with senior officials. (Credits: SKA)



Kevin Govender attended the **DSI annual budget vote** in Parliament. This is an opportunity to meet various high level stakeholders from across the sciences. In previous budget votes the OAD was mentioned, which certainly raises its profile within the South African Science system. (Credits: OAD)



Vanessa McBride presented the OAD's Data Science Toolkit at the **UCT e-Research conference on Data for Development** in April 2019. (Credits: OAD)





AMANAR UNDER
THE SAME SKY



GIRLS ASTRONOMY
CAMP NIGERIA



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.





The North American Regional Office of Astronomy for Development was officially established on 29 January 2020 at a signing ceremony in Cape Town, South Africa. The event marked the formation of the eleventh Regional Office of Astronomy for Development. (Image credits: IAU/OAD)

OVERVIEW

REGIONAL OFFICES ACTIVITIES

ANDEAN REGIONAL OFFICE

- Participated in Radio Astronomy for Development session at the Big Data and Digital Technologies Workshop in Chiang Mai, Thailand.

ARAB WORLD REGIONAL OFFICE AND ARABIC LANGUAGE EXPERTISE CENTRE

- Under the Royal patronage and in the presence of HRH Princess Sumaya bint El Hassan, representing His Majesty King Abdullah bin Al-Hussein, the permanent campus of the UN Regional Center for Space Science and Technology Education for Western Asia-Jordan (RCSSTE) was inaugurated. The RCSSTE jointly hosts the Regional Office with the Arab Union for Astronomy and Space Sciences (AUASS).
- Weekly astronomy activities conducted at the Jordanian Astronomical Society Cultural Forum hosted by the AUASS.
- The 1st RCSSTE-AUASS Summer School in Astrophysics and Space Science was organized in collaboration with the Jordanian Astronomical Society, Arab Regional Office & the Kottamia Astronomical Observatory, Amman-Jordan.

EAST ASIAN REGIONAL OFFICE AND CHINESE LANGUAGE EXPERTISE CENTRE

- The East Asian Office established a "Science Fiction and Science - STEM education using superheroes" Community of Practice at Xi'an Jiaotong-Liverpool University (XJTLU), Suzhou.

EAST AFRICAN REGIONAL OFFICE

- Together with the Ethiopian Space Science Society (ESSS) and Ethiopian Space Science & Technology Institute (ESSTI), celebrations were organized for the 50th anniversary of moon landing.
- The Regional Office was involved in the organization of the African Astronomical Society science meeting, IAU356 symposium, the EA-ROAD regional representatives meetings and African Space Leadership Congress in October and December 2019.
- The regional office succeeded in getting funds for a dark sky and astro-tourism outreach project as well as the East Africa summer school of Astronomy through the OAD and OAO call for proposals.

EUROPEAN REGIONAL OFFICE

- The European Regional Office hosted a symposium celebrating the 30th anniversary of the Pale Blue Dot in Leiden in February 2020. The symposium was part of the Pale Blue Dot project that uses astronomy to promote a sense of global citizenship in young children. It is also linked to OAD's flagship theme 2.
- The European Regional Office will start twinning collaborations with OAD regional offices in Armenia, Colombia, Ethiopia and Nigeria through an Erasmus+ International Credit Mobility grant. The grant will enable staff and students from participating astronomy institutes in these countries to work in the Netherlands for their professional development and will enable the implementation of a one-week capacity building training in each partner country.
- Together with the Erasmus Centre for Entrepreneurship and the company dotSPACE, the European Regional Office was granted an EU H2020 project proposal called SKIES (SKilled, Innovative & Entrepreneurial Scientists). This project will include the development of training in open science, innovation and social entrepreneurship skills to be implemented at astronomy PhD programmes in Germany, the Netherlands, Poland, Portugal and South Africa.

NORTH AMERICAN REGIONAL OFFICE

- The North American Regional Office was officially launched in January 2020, at a ceremony in Cape Town, marking the establishment of the 11th Regional Office.
- The office is engaged in a Needs Assessment of North America including United States and U.S. Territories, Canada, Mexico, Greenland, and island nations of the Caribbean. The Needs Assessment will inform upcoming strategic planning.
- The Regional Office has appointed a contact to the IAU Office for Astronomy Outreach (Shari Lifson) and a contact to the IAU Office of Astronomy for Education (Tim Spuck).

PORTUGUESE LANGUAGE EXPERTISE CENTRE

- The Eddington @ Sundy event in Principe celebrated the 100th anniversary of the 1919 solar eclipse which successfully tested Einstein's general theory of relativity for the first time.
- Members of the Regional Office from São Tomé participated in a documentary about British expeditions to observe the 1919 solar eclipse "À espera das estrelas". This documentary was produced by RTP Africa, a Portuguese TV channel, with the support of Eddington @ Sundy.

SOUTH EAST ASIAN REGIONAL OFFICE

- A number of workshops and trainings were organized by NARIT, the host of the Regional Office, including the

International Astronomical Training Workshop, Network for Astronomy School Education Workshop, 2nd NARIT-STFC Summer School in Radio Astronomy and Technology, NARIT-EACOA Summer Workshop on Astrostatistics and Astroinformatics, GCRF Big Data and Digital Technology Workshop, Big Data for Southeast Asian Development.

- The First Inspiring Stars Workshop in Thailand was jointly organised by NARIT, OAO and National Astronomical Observatory of Japan. Educators and school teachers across Thailand participated in the workshop to support teaching of underrepresented students with disabilities.
- The International Training Centre in Astronomy under the auspices of UNESCO was inaugurated on 4 July 2019 in Chiang Mai, Thailand.

SOUTH WEST & CENTRAL ASIAN REGIONAL OFFICE

- Major events include the Regional Summer School on Space Sciences and Technologies and the SWCA 3rd Regional Astronomical Workshop.
- An Astro Tourism project was conducted, including a workshop organized with participants from Armenia, Georgia, Iran, Russia, Turkey, Kazakhstan, and Poland.
- An agreement was signed between the Artsakh Ministry of Education, Science and Sports and Byurakan Astrophysical Observatory for cooperation on science, education and outreach.

SOUTHERN AFRICAN REGIONAL OFFICE

- Two astronomy training workshops (AstroLab) were held in Zimbabwe and South Africa. The Zimbabwe workshop was hosted by the National University of Science and Technology (NUST), funded by NUST and the AstroLab project grant. The South African workshop was held by the University of Venda, funded by the South African Department of Science and Innovation, the AstroLab project grant, National Astrophysics and Space Science Program, and the University of Venda.

WEST AFRICAN REGIONAL OFFICE

- The IAU President, Prof Ewine van Dishoeck, visited the region in May 2019 where she met with the astronomy community and stakeholders in Nigeria, Ghana, and Sao Tome and Principe.
- The West African International Summer School for Young Astronomers 2019 was held in Abuja, Nigeria from October 21 – November 02, 2019.
- West African ROAD is collaborating with European ROAD on a twinning programme via the Erasmus+ International Credit Mobility program.



Arab Astronomical Society Astronomy Teacher Training Program in Palestine. (Image credits: Dawoud Basem Duab Tarawa, IAU100)

REPORT

NEWS FROM THE IAU

IAU100: CELEBRATING 100 YEARS OF IAU

In 2019, the International Astronomical Union celebrated its 100th anniversary. To commemorate this milestone, the IAU organised a year-long celebration to increase awareness of a century of astronomical discoveries as well as to support and improve the use of astronomy as a tool for education, development and diplomacy under the central theme "Under One Sky". Thanks to the volunteers across the globe, more than 5,000 activities were organized in 143 countries that involved direct participation of 5–10 million people and reached an estimated >100 million people.

Three OAD projects also received funding under IAU100 in order to expand their reach and impact.

1 Astro-tourism in South West and Central Asia

This is a follow up of the "Development of Astro Tourism in South West Asia" project conducted in 2015. A study of astronomical sites was done in Armenia, Georgia and Iran towards the aim of

stimulating astro-tourism in the region. With IAU100 support, the project expanded its activities to other countries in the region. The target group will be the general public, especially tourists, astronomy enthusiasts, amateur astronomers, children and students.

2 Columba-Hypatia: Astronomy for Peace, Cyprus

The project aims to inspire children to be curious about science and the cosmos, while promoting a feeling of global citizenship and a culture of peace and non-violence. In 2017, the project brought together children from the Greek-Cypriot and Turkish-Cypriot communities, to learn about our place in the Universe, and about each other, thus breaking down barriers and stereotypes, while building bridges between the two communities. With support from IAU100, project activities continue, including development of guidelines to replicate the concept in other parts of the world.

3 Global Astronomy Tech-Apps (GATA) challenge, Palestine

The GATA Challenge brings together groups of astronomy amateurs, physicists, computer programmers, designers, content writers, marketers and business students, all gathering in one place for an interdisciplinary challenge (postponed by COVID-19). Participating teams will be given support by local and international mentors to develop technological applications to support the use of astronomy for development. This project is modelled on the 2017 GATA boot-camp organized in Gaza which integrated astronomy with other disciplines while promoting creative ways of applying technology to local challenges.

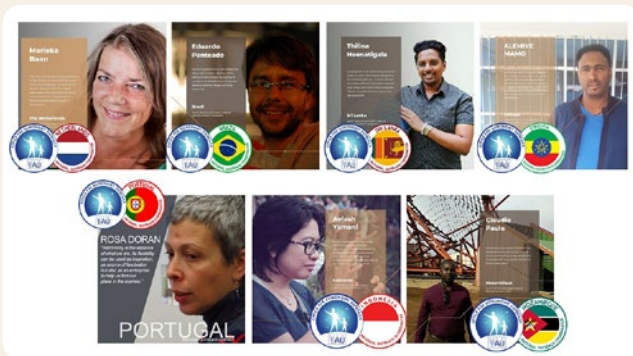


More information:

www.iau.org/news/announcements/detail/ann20019



IAU OAO NOC FUNDING SCHEME



The IAU Office for Astronomy Outreach (OAO) selected four projects under the first National Outreach Coordinator (NOC) Funding Scheme, designed to provide the IAU NOCs with a dedicated grant system to support their outreach initiatives. In the first year of the scheme, under the theme "We Must Preserve Earth, Our Only Home in the Universe", the NOCs formed partnerships to present proposals for multi-national collaborations. The selected projects involve fifteen National Outreach Coordinators (NOCs) from Africa, Asia, Europe and South America and will focus on key areas of astronomy outreach, from raising awareness of dark skies to conducting outreach for underserved communities.



More information:

www.iau.org/news/announcements/detail/ann20017

IAU OAE OPPORTUNITIES

The new IAU Office of Astronomy for Education is setting up structures essential to achieve its goals. It released a call for institutions willing to host OAE Centres or OAE Nodes, which are additional offices of the OAE that are active internationally. The OAE is also calling for National Astronomy Education Coordinator (NAEC) Teams, similar to the network of National Outreach Coordinators of the IAU Office for Astronomy Outreach. Each NAEC team should consist of up to five experts in astronomy education.

If possible, experts on both primary and secondary education, as well as on astronomy education research, should be included. NAEC Teams should be diverse both in terms of gender as well as in terms of your country's geographic regions, ethnicities and languages, where applicable.



More information:

www.haus-der-astronomie.de/oea/naec-role



REPORT

FINANCIAL INFORMATION

The OAD operates within the financial systems and policies of the NRF, which comply with South African national legislation. Compliance of the OAD's financial transactions to the relevant policies is tested through annual audits of the SAAO and NRF. The OAD financial year (April to March) is different as compared to the implementation of funded projects (calendar year), and long-term special projects or grants (which can be multi-year).

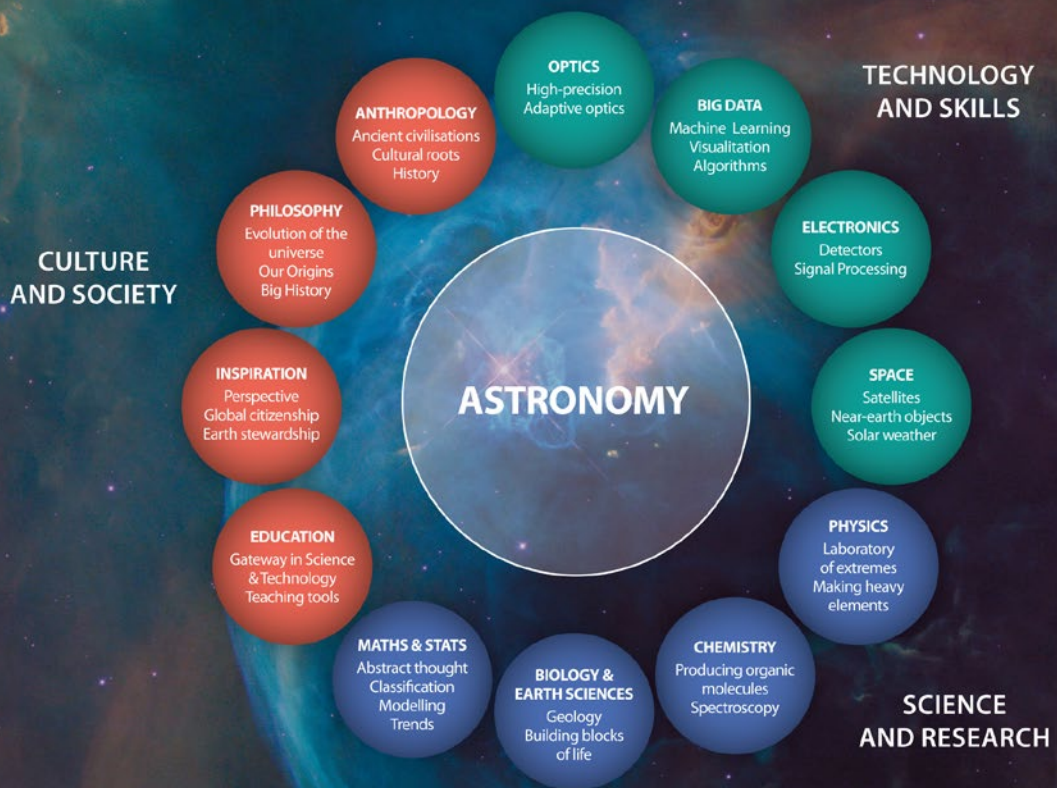
Since 2016, the project grants are paid directly from the IAU in Paris (€110,000 per year). The total allocation for 2020 projects was €110,834.

For the duration of the IAU-NRF agreement, the OAD receives an annual core income from the DSI/NRF and the IAU, all administered through the NRF. Since the renewed IAU-NRF agreement in 2015, the DSI/NRF provides R1,500,000 per year with an annual inflationary increase of 6%, plus the salary and associated costs of a full time OAD astronomer. The IAU provides a fixed amount of €70,000 per year, plus the salary and associated costs of a part time fundraiser.

For the 2019–2020 financial year, the DSI/NRF provided R3,100,000 and the IAU provided R1,132,932 (total income of R4,232,932). Total expenditure for the year was R4,209,649, leaving a surplus of R23,283 for this financial year. However, there is also a total surplus of R1,115,761 that is carried over due mainly to unfilled positions over the past few years. In our long-term budget projections until 2021 (when the OAD contract expires) we take this into account and our activities have been adjusted to redirect the surplus to the Development Economist Fellowship, COVID-19 related projects, and Flagship projects. All funds will be fully utilised by the end of the IAU-NRF agreement, as discussed with the OAD Steering Committee.

International Astronomical Union OFFICE OF ASTRONOMY FOR DEVELOPMENT

ASTRONOMY FOR A BETTER WORLD!



www.astro4dev.org



The image presents Astronomy as a field that is at the intersection of science and technology and culture and society. It forms the basis of the IAU Strategic Plan on Astronomy for Development which describes the role of astronomy in the pursuit of the sustainable development goals. For more information, visit www.iau.org/administration/about/strategic_plan.



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PHOTOS

All activity photos used were submitted to the OAD by the respective project leaders. More information on project leaders and photo credits can be found on www.astro4dev.org.

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