



science & innovation

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Quarterly Report 2021/22

PROGRAMME: African Astronomical Society (AfAS)

**Quarter 4
(1 April 2021-31st March 2022)**



AFRICAN
PLANETARIUM
ASSOCIATION

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1. Rationale/background of the Programme

Over the past two centuries, professional astronomy activities on the African continent have increased and this has led to the onset of growth in capacity. However, collaborations with partners from outside the continent through various initiatives have been a major contributor to the growth that has been seen. The High Energy Stereoscopic System (H.E.S.S.), the Southern African Large Telescope (SALT), the Square Kilometer Array (SKA), and the African Very Long Baseline Interferometry (VLBI) Network, are examples of massive international ventures in which African countries and scientists are playing a leading role. These ventures are complemented by the efforts to build capacity, through initiatives like the Development in Africa with Radio Astronomy (DARA) Newton Fund programme to train young Africans in astronomy, engineering, technology, and related fields. The purpose of these projects is to develop skills using astronomy in a number of targeted African countries at this stage. The DARA project is targeted at countries acquiring radio telescopes through the African VLBI Network (AVN) as part of their participation in the South African Square Kilometre Array project. The countries involved in the AVN are Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Zambia, and South Africa. In 2017, the 32m radio telescope observatory in Ghana was completed and inaugurated, this was the first AVN telescope completed and one of two operating radio telescopes in Africa, the other being the HartRAO telescope in South Africa.

In addition to the progress mentioned above, African countries are rapidly developing their own astronomy training programmes, instruments, and infrastructure. Examples of these developments include the Entoto Observatory and Research Centre in Ethiopia, the refurbished Kottamia Astronomical Observatory in Egypt, Oukaimeden Observatory in Morocco, a 1m optical telescope in Burkina Faso, a Masters programme in Astronomy in Uganda and Algeria, and several astronomy initiatives in Nigeria. Discussions around the possibility of setting up an Astronomical Observatory and related facilities for education and outreach in Kenya are ongoing to realize this project. Running in parallel to the above-mentioned initiatives are several data processing and analysis infrastructure projects.

It is therefore crucial that African nations collaborate amongst themselves to develop continental-wide skills through targeted projects. Thus, AfAS aims to perform the pivotal role of coordinating the network of astronomers, promoting the study and applications of astronomy, promoting astronomy research collaborations, advising the government stakeholders on Astronomy related policy, and fostering the growth of astronomy in Africa. The organization will therefore ensure that Africa maintains a stable astronomical environment that can sustain knowledge-based economies through various activities. The African Astronomical Society (AfAS) was relaunched at the Astronomy in Africa business meeting, which was held in Cape Town at the South African Astronomical Observatory from 25-26 March 2019. The meeting was attended by some 80 participants from 20 nations including astronomers, public stakeholders, and research organizations. The meeting focused on field-related issues of strategy, policy, and governance and the planning of the future of astronomy development in Africa. The AfAS Executive Committee elected at the meeting was mandated by the African astronomy community to help achieve the mission and vision of the Society through the achievement of the objectives as set out in the AfAS Constitution. At this meeting the South African Government, through the Department of Science and Innovation (DSI) offered to host and fund a relatively small staffed AfAS secretariat for three years, from April 2019 to March 2022, funding has subsequently been extended to March 2024.

In addition, there are some major projects which the DSI transferred to AfAS to manage, these are:

- i. AERAP - The African European Radio Astronomy Partnership for the development of astronomy knowledge and skills in Africa through funding and partnerships with European partners. AERAP is the existing Africa-Europe radio astronomy platform previously managed and funded by the DSI of South Africa. Initially established as a lobbying platform for South Africa to promote the SKA African bid in Europe to host the SKA telescope in Africa, the platform is designed to support radio astronomy and related sciences collaboration between Africa and the European Union. It will continue to support radio astronomy sciences, and additional application areas will be explored to ensure that it continues to support AfAS in the implementation of key Africa and European Union policy objectives in the field of radio astronomy research and development, including the digital economy.

Covid-19 will be top of the policy agenda in the European Union and around the world. AERAP will focus on identifying Covid-19 research activities, in particular, those in Europe with potential relevance to African partners. The regular AERAP webinar will include Covid-19 on the regular agenda and dedicate a number of sessions to Covid-19 with the objective of information sharing and partnership development.

- ii. African Science Stars Publications – The Science Stars magazine has over the past 11 years profiled the work of several science awareness and communication activities within the South African National System of Innovation (NSI). However, the concept of an African Science Stars magazine has now emerged to expand the current initiative to an African-wide magazine which will build on the work of the Science Stars project in South Africa and expand it on a continental scale in Africa using astronomy as a tool for science awareness.
- iii. African Planetarium Association- The African Planetarium Association (APA) has been created to become a network of planetaria and their development across Africa. APA is an affiliate of the International Planetarium Society (IPS) and has representation on the IPS board. APA would therefore become the link between the planetaria in Africa with those in the rest of the world. APA was launched at the Iziko Museum and Digital Dome in Cape Town in March 2019, alongside the re-launch of the African Astronomical Society.

COVID-19 Response

Covid-19 has had a significant impact on health systems, the world economy, food security, education, mobility, and communities. The situation requires response through various interventions and in recognition of this, the IAU-OAD released an extraordinary, fast-tracked call for proposals for projects (or partnerships) that in some way use astronomy, in any of its aspects (including skills,

methodologies, tools, infrastructure, inspiration or even just networks of astronomers/enthusiasts themselves) to help reduce some of the negative effects of the pandemic. The IAU-OAD, AfAS, and APA collaborated to fund small projects to enable communities to overcome some of the adverse effects of COVID-19. The AfAS Executive Committee approved the funding for projects in line with the vision of AfAS to be the voice of astronomy in Africa while contributing to addressing the challenges faced by Africa through the promotion and advancement of astronomy through the AfAS Community Projects Fund. The funded projects through AfAS and the APA include those using astronomy in remote teaching and learning programs to continue engaging students during school closures, new planetarium shows in the era of Coronavirus, providing follow-up capacity building for teachers involved in Refugee camps, engaging elementary and high school children through Art, providing the families of students with hygienic supplies, while also including educational, astronomy-based material for the children and their families to enjoy while at home, and acquisition of recyclable personal protection equipment and handwash for laboratory activities and awareness sessions. The funded projects are based in Tanzania, Algeria, Nigeria, Burkina Faso, Kenya, South Africa, Ghana, and Uganda. AERAP also focused on identifying Covid-19 research activities, those in Europe with potential relevance to African partners. ASSAP released a Covid-19 focus edition of its publication and AERAP webinars included Covid-19 on the agenda and dedicated several sessions to Covid-19 with the objective of information sharing and partnership development.

The COVID-19 pandemic, which has had a significant impact on the entire world, will undoubtedly continue to have a negative impact on AfAS's activities during 2021/22 and probably beyond.. However, the Society will make every effort to meet its operational goals by making extensive use of digital platforms. Workshops, exchange programs, telescope access, the annual conference, and outreach will be closely reviewed and updated to account for pandemic-related restrictions, and alternative plans will be developed where possible.

2. Summary of performance for the current year

2.1 Key Operational Objectives for 2021/22

2.1.1 AfAS Core Activities

- Fully establish the Secretariat and the operational systems to support AfAS activities
- Host the Annual Conference and General Assembly in March 2022 and elect the Executive Committee for a 3year term.
- Cultivating collaboration among countries in Africa as well as collaborations between Africa and the rest of the world
- Supporting collaborative international astronomical activities and projects in Africa
- Encouraging involvement in, and collaboration with, relevant organisations both within Africa and internationally
- Encouraging an appreciation of the significance of astronomy for society by countries in Africa, as well as the African Union (AU)
- Serving as the interface between the AU and astronomy-related activities
- Encouraging governmental and intergovernmental (AU) investment in astronomy-related activities
- Encouraging the use of astronomy for socio-economic development
- Strengthening the teaching of science, technology, engineering, and mathematics in schools and the public through the use of astronomy and related fields
- Using astronomy to attract African youth into science, technology, engineering, and mathematics careers
- Providing mentorship, leadership, and guidance to early-career astronomers
- Increasing the number of African astronomers as well as the number of astronomers working in Africa
- Organising meetings and events pertaining to astronomy and related fields
- Highlighting and disseminating the scholarship of African astronomers in the public domain, and career opportunities for emerging astronomers
- Publish articles to promote research in astronomy and astrophysics
- Facilitating the use of existing international astronomical facilities, and, where necessary, the development of new astronomical facilities in Africa
- Safeguarding astronomical sites in Africa
- Identifying and preserving indigenous astronomical knowledge
- Oversee all astronomical activities within the ambit of the Society
- Inspire and retain underrepresented groups to study astronomy especially women.
- Improving the status of girls and women in science, and especially astronomy, in the future.
- Manage the incubation of the BRICS Astronomy Association and marketing and promotional publications relating to its activities (through ASSAP).

2.1.2 AERAP

- Consolidate AERAP members, including the objective of increasing the level of research partners on the level of policymaker partners
- Increase the number of potential partners, including increasing the number of partnering profiles of African research actors on the European commission's CORDIS website, where they can be easily accessed by EU actors looking for Africa partners. This will be particularly important in 2021 given the publication of the horizon Europe calls for proposals in late May 2021. A number, of course, will have dedicated Africa components; but all calls are open potentially to African partners and the objective will be to maximise this level of participation.
- Raise awareness amongst policymakers and European commission European Council and European Parliament
- Raise awareness on the level of Africa partnerships

- Contribute inputs to crucial policy areas, including the following:
 - Geoscience
 - ICT
 - Women in science
 - Agri-food
 - Life sciences
 - Biodiversity
 - Energy, climate, and related themes.

In addition to programme focused activities, AERAP will complement practical partnership actions with policymaker engagement. This will focus on increasing the potential for African partners to be included in references contained in Horizon Europe work programmes, both in 2021 and in 2023. Participation and access to funding are greatly enhanced if specific ideas are seeded in the work programmes.

Another area focus for Eric will be the enabling regulatory environment. Proposed regulations in the area of data protection, medical devices, clinical trials, and in vitro diagnostics mean that African researchers need to be very cognizant of the data protection regulation and the European Union and how to comply with it. AERAP will use its activities to raise awareness of these issues and to explore practical measures in order to ensure that data related to research can be exchanged between and amongst partners and the European and Africa. Currently, the data protection regulation has extraterritorial applications in Africa. This has come about with virtually no consultation with African nations. It is important that European policymakers understand potential applications and unintended and unforeseen consequences

2.1.3 ASSAP

- Advancing public awareness, appreciation, and engagement of astronomy.
- Providing a wide regular coverage of astronomy activities in the region from professional astronomy, outreach and career guidance, astro-tourism and related socio-economic developments, preservation of dark skies, policy developments, conferences, etc
- Creating partnerships with key stakeholders in the astronomy sector such as national and regional facilities, astronomy clubs, public organizations and private companies

2.1.4 APA

- Promote communication between members of the planetarium profession both within Africa and internationally.
- Improve the quality of planetarium programming and African content by providing educational opportunities to the Members.
- Promote a public awareness of the value of planetariums as educational institutions.
- Provide publications, activities, services, and training of benefit to the Members.
- Solicit and receive grants, contributions, and other property; to enter into contracts; to engage necessary personnel and services; and to transfer, hold, and invest such property as necessary for the furtherance of the purposes and activities of the Association.

2.2 Performance Highlights for the year

2.2.1 AfAS

General

Dr. C Takalana, previously, the Deputy General Secretary of AfAS on a part-time basis, commenced full-time duties on 1st April 2021 as the Head of Secretariat on a 3year contract. Also, the two interns, Mr. M Nelwamondo (AfAS) and Ms L Ramadwa (APA) were re-appointed as Administration Officers on 2year contracts commencing 1st April 2021 subject to satisfactory performance in the first year. All 3 employees are now based at the AfAS Office which is hosted by SAAO in Observatory, Cape Town. The offices are now fully furnished, and the employees have been at the office for at least 3 days/week since October 2021, some COVID-19 restrictions and health protocols have remained until March 2022 making it impractical for a complete return to the office. However, a hybrid work environment is foreseen from April 2022 where an employee will be allowed to work from home for a portion of the week.

The implementation of standard office procedures is nearing completion, these will ensure that there is proper record keeping, audit trails and that the policies of AfAS are adhered to. The year-end external Audit for 2020/21 was finalised in July 2021 and AfAS received a clean audit with no findings. Statutory returns have been successfully submitted to SARS, CIPC and the Department of Social Development.

The AfAS Project Manager, Mr. Y Manjoo, has had his contract renewed for a further 2year period commencing 1st April 2021, but at a reduced involvement at 6days/month. The training of the Administration Officers and mentorship of the Head of Secretariat, which will be led by the Project Manager, although initiated, will only fully commence once the pandemic has subsided considerably to allow for a return to the offices and the vaccination programme is in its advance phase in terms of achieving “herd immunity”. The training on the Accounting and Payroll systems requires “hands-on” tutorship as well as working in a group. In addition, the Project Manager will be responsible for the BRICS incubation within AfAS until March 2024.

C Takalana and Y Manjoo met with C Sharp and B de Swardt of SARAO to discuss the status of the AVN roll-out in SKA partner countries and the possibility of non-SKA partner countries joining the network. SARAO is willing to consider the latter but stressed that such countries must fund their own costs and meet the technical and scientific goals of the project. There were discussions on other areas of collaboration as well and a MoU has now been agreed between the two organizations with only signatures to the agreement outstanding. The signing of the MOU has been held back until the new AfAS President assumes office from 1st April 2022.

There have been undoubtedly, two highlights for the year, the President's (Jamal Mimouni) Outreach/Educational visit to Chad and Niger in February 2022, and the AfAS Annual Conference/General Assembly 2022 held at SAAO in Cape Town as a hybrid event from 14 -18 March 2022.

Outreach/Educational Visit (J Mimouni)

This visit originally included the Sahel, namely Chad, Niger, and Mali with several educational institutions in various cities being involved. Unfortunately, due to the political situation and closed borders in Mali, this country was excluded from the programme prior to departure. The shortened visit included some 5 universities, talks to civil society, some High Schools, cultural centres, visits to officials in the educational sector and some social interactions for developing networks. Such a mission to some of the poorest and least developed countries in Africa, could make a lasting impact and arouse vocations in Astronomy, and is part of the core missions of AfAS as a Pan-African institution. It would further help Mamadou Djabbi establish his OAD & OAO educational networks across Chad as an outcome of the AfAS mission. The tour included:

- In Chad: 18 activities including three Universities in the cities of N'djamena and Mongo through public lectures, conferences and meetings with faculty members and a number of key officials in the education sector. There were also Radio and national TV appearances.
- In Niger: 10 activities in Niamey and the Niamey region through public lectures, conferences, and meetings with faculty members, as well as a meeting with executive members of the Ministry of Higher Education.

As a result of the successful mission to Chad and Niger, the President has recommended the following as follow-up actions to be progressed by the incoming Executive Committee:

- ⇒ Formerly acknowledge focal points in the two countries: Prof. Nourou Amadou (Himself an active astrophysicist) at Niamey University for Niger, and Dr. Annouar Djidda Mahamat from Njamena University. The desire to develop astronomy and make it part of the physics curriculum is very strong among the Faculty members of each of the two major universities in both countries and it has the full support of their deans and scientific councils. In addition, the very active physics club at Niamey University is ready to adopt astronomy outreach within the University community and externally. The President, Mohamedine Hamed could also be involved in these activities.
- ⇒ Provide scholarships (at least two) to some bright students or young researchers to pursue post-graduate or post-doc studies. This can be through the NASSP/SARAO (SKA) programmes in South Africa or the AU-EU science program as proposed by the AfAS-EAS working group.
- ⇒ Provide a reflector telescope with equatorial mount to each of the physics departments to be used as support equipment in introductory courses in astronomy at both universities. The telescope proposed is an "advanced" amateur instrument possibly with a CCD camera and few accessories to carry out small science projects with a cost of around 2000 euros each. Alternatively, higher specifications instruments could be used as the faculty members are in applied science and are very skilled in making use of advanced instruments. However, funding for such equipment will be a problem and donations/sponsorships should be actively sought.
- ⇒ Run the OAD funded Astro-Lab programme of Michèle Gerbaldi in the two countries by including a group of advanced students and some Faculty members
- ⇒ Provide a series of galileoscopes refractors through OAD-AfAS (OAD providing the telescopes and AfAS paying for the shipping, or any other alternate scheme) to support the introduction of astronomy at Universities and some High Schools.
- ⇒ Provide a portable planetarium for each of Ndjamen and Niamey Universities within the AfAS –APA scheme.
- ⇒ Run further astronomy awareness campaigns from both an academic and societal perspectives in French speaking countries where there are currently no astronomy related activities. Such countries could include the Democratic Republic of Congo, (the second largest country in Africa), the Republic of the Congo, the Central Republic, Cameroon, and Burundi. Another group of countries could be South Sudan, Somalia and even Somaliland as well as Sierra Leone, Guinée, Guinée Bissau, Gambia and Liberia. All this could be carried out by enlisting OAD regional Offices and local NOC and NAEC. The IAU-GA 2024 committee could help greatly in implementing this plan.

AfAS Annual Conference & General Assembly 2022

Over 350 astronomers and representatives of mainly African countries registered for the 2nd AfAS Annual Conference. The conference was held from the 14 to 18 March 2022 as a hybrid event, with the physical venue being the South African Astronomical Observatory (SAAO) in Cape Town, South Africa. Some 50 local and international delegates attended the meeting in person. Days 1 to 4 of the conference focused on science, outreach, communication, and education activities emanating from astronomy activities in Africa as well as from collaborations among countries in Africa and the rest of the world. A total of 68 abstracts were accepted for talks, 46 Science and 22 Education, Development, and Outreach. An additional 37 abstracts were accepted for posters and "lightning talks". There were also seven special sessions organised by the AfAS committees and partner projects, these were:

- ❖ Advancing global collaborations
- ❖ The African Planetarium Association and building a planetaria community across Africa
- ❖ IAU General Assembly 2024 in Cape Town: Gearing up for the GA in 2024
- ❖ Current status of AfNWA after one year since its official launching
- ❖ NAEC Africa Discussion: Opportunities for pan-African collaboration in astronomy education
- ❖ Virtual Observatory Tools
- ❖ Stellarium and other tools

The final day of the conference (18 March 2022) was dedicated to the General Assembly, which is held every three years and, members get to elect a new Executive Committee. A total of 157 individuals (in-person and via Zoom) attended the General Assembly but only 103 were accredited members of AfAS, thus the remaining 54 joined as observers. There were report backs from the Secretariat and the Chairs of the various committees including the latest update on AfAS membership. There are 227 accredited members which include 157 full members, 44 Associate members and 26 students. Furthermore, the gender bias is towards male with there being 172 male, 54 female and 1 other. Some 27 African countries are represented with a further 13 from outside the continent. It has been suggested by the AfAS Executive that membership fees should be introduced in the medium term and members were invited to provide input into the membership fees and structure of benefits.

Amendments to the Constitution as proposed by the Executive Committee were presented to the members, their further, minor amendments and comments were noted by the AfAS Secretariat and have been incorporated in the updated Constitution as appropriate. The latest version of the Constitution can be viewed on the AfAS website (<https://www.africanastronomicalsociety.org/constitution-of-the-african-astronomical-society/>). The members of AfAS have requested that the incoming Executive Committee establish a task team to review the Constitution and revert to the members at the next General Assembly on further possible changes, including the possibility of allowing students to vote for a representative of their choice, to the Executive Committee.

There were 18 nominees for the 7 Executive Committee members and the two-phase election process resulted in the following members being elected as the Executive Committee of AfAS:

Thebe Rodney Medupe (President)
Naomi Asabre Frimpong (Vice-President)
Elizabeth Naluminsa
Alemiye Mamo Yacob
Mirjana Pović
Sinenhlanhla Precious Sikhosana
Sthabile Kolwa

The Secretariat informed the General Assembly that a formal call inviting countries to submit letters of intent to host the AfAS-2024 Annual Conference and the AfAS-2025 Annual Conferences and General Assembly would be made during 2022.

Other

The Forum on Astronomy in Africa was held virtually from 27 to 29 October 2021 in preparation for the International Astronomical Union (IAU) General Assembly (GA) in 2024 for the first time on the African continent. Cape Town has been selected to host the meeting, and the National Research Foundation (NRF) of South Africa is the official host organisation. Other key organisations involved in the event include the African Astronomical Society (AfAS), the Academy of Science of South Africa (ASSAf), the IAU Office of Astronomy for Development (IAU OAD), and the South African Astronomical Observatory (SAAO). The main purpose of such a forum was to engage the African astronomy community and discuss how the continent can maximally benefit from the unique opportunity of hosting the IAU GA in 2024 as well as how best to facilitate participation by countries within the continent and obtain commitment on participation and identify country ambassadors. Contributions were made in the form of short recorded talks about ideas or initiatives related to the IAU GA 2024. During the forum, real-time proposals for discussion could be made in the “unconference” session. Participants included astronomers, amateur astronomers, and the astronomy education outreach community, and anyone with an interest in astronomy research, infrastructure, education, outreach, development; amateur astronomy, astro-tourism, astronomy arts & culture. One of the important outcomes of the Forum was contributions from participants to update the [Vision document](#) that captures the spirit of unity in astronomy across Africa and to consolidate that spirit into a vision for 2024 and the legacy thereafter that one can strive towards as a united astronomical community. Participants were given an opportunity before, during, and after the forum, to add their comments and suggestions to the document.

The Science Forum South Africa 2021, hosted by the DSI, took place from 1 to 3 December under the theme “**Igniting conversations for World Science Forum 2022**”. The African Astronomical Society (AfAS) and the International Astronomical Union’s (IAU) Office of Astronomy for Development (OAD) organised a session (2 December at 15:30) on “**Advancing Africa’s Astronomy Agenda, leveraging South Africa’s leadership for the development of astronomy across the continent of Africa**”. The session was addressed by various key stakeholders in Astronomy on the continent and focused on the impact of various projects on the rest of Africa including the Meerkat telescope, MeerLICHT, Southern African Large Telescope (SALT), the Hydrogen Intensity and Real-time Analysis eXperiment (HIRAX), the High Energy Stereoscopic System (H.E.S.S.) in Namibia, the SKA project that is scheduled to commence construction in South Africa in 2022 and prospects for the future including the African Very Long Baseline Interferometry Network (AVN) and the Africa Millimetre Telescope (AMT), with the latter providing an essential link to the international Event Horizon Telescope (EHT). The session was well attended and received good feedback from the South African and greater African astronomy community.

AfAS remains in a strong cash position with total cash on hand at end March 2022 at R1m with some R0,3m outstanding payments for the annual conference which will be paid in April.

AfNWA (African Network for Women in Astronomy)

To strengthen West African participation in AfNWA, the committee agreed to include an additional member and Ms. Salma Silla from Senegal has joined the AfNWA.

Three virtual training workshops were hosted during the year, two were held on “CV Writing”, one in April and the other in August. The third event was in May on preparing “Impactful Presentations”. Carolina Odman (University of Western Cape, South Africa) led the CV writing workshops whilst Jacinta Deihaize (University of Cape Town, South Africa), presented the one on presentations. In total, 66 participants attended the training, most of them were MSc and PhD students and early-career researchers. The workshops were positively received by all participants who indicated that they have gained confidence in presenting in the future. Participants also mentioned that their attitude towards good communications on science has changed for the better.

Although substantive work was done on developing the Phase 1 and Phase 2 proposals for the Google Impact Challenge for Women and Girls call for funding, the project was not selected for funding at the final stage. The title of the proposal was “The Universe is our opportunity – empowering women and girls in science” with focus on strengthening the members’ skills, reaching more women in science, and encouraging more girls into science, technology, engineering, and mathematics (STEM) across the African continent. There were initially at least a thousand entries for Phase I of the call.

Two special sessions on Women in Science were organised at the 6th East African Astronomical Society Workshop and the Africa-EU Science and Innovation Summit, held virtually in May and June, respectively. More than 50 participants from Africa, Europe, and the rest of the world attended each of the sessions. The two organised sessions enhanced the visibility for AfNWA and provided a better view of different initiatives related to women in astronomy and science in Africa and strengthened the possibility of future collaborations. In particular, a stronger connection has been established with Nature Research, with a possibility to have in future, a special feature article on “Women in Science in Africa”.

AfNWA and AfAS were also included in the plenary talk that was given virtually at the European Astronomical Society annual meeting in June 2021. The talk was attended by at least 550 participants.

AfNWA and AfAS were represented at two invited seminars organised by Keele University (UK) in May and Leiden Observatory (Netherlands) in June. Again, this provided the opportunity to enhance the visibility of both AfAS and AfNWA.

AfNWA participated in a Science Summit on 17th September hosted by the UN 76th General Assembly. Its vision was presented by Priscilla Muheki (MUST, Uganda) under the SDG 5: Gender Equality session ‘Women in Science Policy Making will achieve the SDGs’. This participation gave important visibility to AfNWA, since the session was attended by more than 100 participants.

The key-note speech was given by Mirjana Pović at the Global Hands-On Universe (GHOU) 2021.

Work on the introduction of the AfNWA awards was led by Vanessa McBride, Mirjana Pović successfully negotiated with the International Science Program (ISP) at Uppsala University, Sweden, its participation in these awards as well as providing some funding. The ISP provided an additional 700 euros for each of the two awards thereby increasing each award to 1500 euros with AfNWA contributing the remaining 800 euros for each award. The awards are offered in two categories, early-career astronomer award and senior-level astronomer award, with the aim to recognize and support the scientific achievements, and contributions to society, of women in Astronomy in Africa. The Call for both awards was issued on 2 November and closed on 30 November. Some 15 and 7 nominations for early career and senior awards were received respectively. A panel of invited members reviewed the nominations, and the winners were announced on March 2nd. The early career award went to Dr. Marie Korsaga, Burkina Faso’s first woman astronomer and the senior award went to Prof. Renée Kraan-Korteweg from South Africa. (<https://afnwa.org/first-ever-african-women-in-astronomy-award-winners-announced/#more-304>). There was a brief awards ceremony at the AfAS Annual Conference on 17th March and the two winners presented plenary talks.

Monthly community meetings (every second Tuesday in a month) commenced in July with an aim to connect more with all members, discuss the current AfNWA activities, and different relevant topics.

A meeting was arranged with the Outreach Committee on 31 August to discuss collaborations on outreach activities with girls and women in astronomy. It was agreed that AfNWA will produce videos as well as issue a call for some seed funding for possible outreach activities across the continent. The aim is to make short videos to be used in different outreach activities across the continent for promoting astronomy and STEM, and for inspiring young girls in primary/secondary schools across Africa. Five video types have been suggested, covering different topics. The initial deadline for submitting videos was 23 December. A total of 20 videos were initially received and these will now be edited by a professional editor.

To celebrate “World Space Week” in October, a special talk was given on 12 October on ‘Growing a network of skilled professionals in Astronomy – the story of the SKA South Africa’ given by Bonita de Swardt of SARAO. The talk provided an overview of SARAO Human Capacity Development Program and how well it has supported young people, including women, in astronomy and in related fields, in growing a local high-tech skills base in South Africa and broader Africa. There were circa 50 people who attended the virtual talk. The AfAS Secretariat and ASSAP assisted in the organization of this event including a poster. In addition to this, a presentation by a committee member, Somaya Saad, has been made public, it is on the African Women in astronomy, and can be accessed using the link below:

<https://afnwa.org/celebrating-world-space-week-oct-04-10-2021>

At the AERAP Europe-Africa Summit Preview meeting that was held virtually on 8-9 December, a session was chaired by Mirjana Pović on "*Women's Movements in African Science, Technology, and Innovation*". Eleven speakers presented their women in science associations and organizations, each listing recommendations on how to improve the gender gap in science. The session attracted 60 attendees and lasted 3 hours. A full list of speakers and presented associations/organizations can be accessed with the link below:

<https://aerapeuafricasummit.sched.com/event/p9Rx/ref-mp09-policy-roundtable-womens-movements-in-african-science-technology-and-innovation>

The following talks were given during the last quarter of the financial year:

-Laura Bassi Series (Italy, virtual), 10 Feb 2022, Colloquium about AfNWA given by Prof. Carolina Odman and Prof. Vanessa McBride:

<https://laurabassiseries.inaf.it/program>

- African Physics Conference (Morocco, virtual), 8 March 2022, 'Road to SDG5: Role of Women in Astronomy and Physics for African Growth' given by Prof. Mirjana Pović:

<https://indico.cern.ch/event/1060503/sessions/428254/#20220308>

- Nature Research Conference 'Breaking Barriers for Gender Equity Through Research' (UK, virtual), 10 March 2022, 'Astronomy for development in Africa and its contribution to SDG5' given by Prof. Mirjana Pović:

<https://conferences.nature.com/event/c6f1deaa-fb8c-4c3c-93c0-9c0919f38377/summary>

AfNWA committee members have been invited to participate in one of the forthcoming podcasts under the Cosmic Savannah series. The recording has been made in March 2022 and is currently being edited.

The development of the new AfNWA website has been completed by Carolina Odman. It is now available at: <https://afnwa.org/>. This website will assist in providing updates on AfNWA activities as well as improve the visibility of the network. Visitors will also be able to access the website through the AfAS website. A short article was prepared on AfNWA for inclusion in the first edition of the 2021/22 AfAS newsletter which was published in July

Communications

Ms Thembela Mantungwa was elected as the chairperson during the first meeting of the committee in the current financial year. Mr. Joseph Ibeh resigned from the committee and has been replaced by Ms. Chidimma Oruche from West Africa. There are also additional members who joined recently: Dr. Priscilla Muheki, from Uganda, and Ms. Zeyneb Aissani from North Africa. Dr. Tana Joseph has resigned from the Committee due to accepting a new job and potential conflict of interest. The new chair continues to be supported by the Secretariat for continuity of activities of the committee. The Chair has presented a first draft of the Communications Strategy, inputs are being sought from the other AfAS committees and a meeting was held with the Science Committee who advised that the results of the AfAS Africa Survey should serve as further inputs to the strategy.

The first AfAS Newsletter for 2021/22 was eventually published in July 2021 with the second publication being issued on the 24 December. The committee agreed to have a boiler plate on each newsletter to make it easy for anyone who reads the newsletter to obtain information on AfAS and what the Society does as well as the benefit to each potential member. The communications committee worked with the Early Career sub-committee Chairperson to design the poster for the Seed Funding call.

The committee has completed the development of promotional material for AfAS. These include pull-up banners, wall banners as well as a generic brochure, focusing on some of the AfAS pillars highlighted in the fund-raising workshop concept document, namely, partnerships, key AfAS activities, expected outcomes and contributions by the Society to the entire ecosystem of AfAS. The Committee is also developing a comprehensive media list that will include the entire African continent.

The Website Developer has been retained in 2021 for maintenance and upgrades to the website. In addition, the Google Workspace is being used for emails and Google Document sharing, all AfAS users are being encouraged to use this mail server, this includes APA. The Secretariat has met with the Web Developer to discuss the state of the website and the development of the Science portal led by the Science Committee. Due to the slow progress being made, the Secretariat has commenced the search for an alternative website designer as well as the procurement of a dedicated server which will be shared with APA and BRICS.

AfAS is currently on all social media platforms and activities are communicated regularly from the various committees. There has been an increase in website visits due to the Annual Conference and the upload of the content of the African Integrated Observatory System Workshop. Once completed, the communications strategy will contribute to how AfAS can best use these platforms to communicate messages and reach a wider audience. AfAS does not pay for social media post boosts/ads but depends on AfAS members, social platform followers sharing, and liking content for it to reach new audiences.

The annual conference was covered by the following media outlets:

SABC: <https://www.youtube.com/watch?v=v99-SS1nHQw>

Cape Argus: <https://www.iol.co.za/capeargus/news/astronomers-gather-in-cape-town-for-africa-focused-astronomy-event-1cab0dc2-8708-46fa-85c1-8b023caeac16>

Outreach

An online, interactive map of Astronomy in Africa has been released, this has received very positive feedback and will be very useful to the public. This map has markers, with additional information, of all known

- Amateur astronomy associations
- Observatories
- Meteor craters
- Meteorite samples in Africa

A WhatsApp group for amateur astronomy associations has been established.

A booklet which has summaries with useful links etc, of all the EDO talks at the AfAS 2021 annual conference has been compiled and is available online. For Africa Day (25th May), the Committee facilitated the Eratosthenes experiment among 6 pairs of cities across Africa. There was also a call for short videos on songs and stories on the Moon and a few responses were received. This project will, however, be continued. A public astronomy calendar for Africa has been developed and widely circulated. This can now be used by various outreach groups across the continent for future planning of events.

To promote visibility of the event, Asteroid Day events across Africa, were collated and publicized.

The Committee is actively involved in the IAU GA 2024 NOC Outreach and Communications sub-committee. The Solar System has been proposed as a flagship project which will involve several African countries and the NOC has accepted the project, funding needs to be secured.

The IAU OAO was supported in terms of encouraging the formation of National Committees in around 20 African states.

Development work on the affordable mobile planetarium has been slow, the technical feasibility of the latest concept design is being tested, a prototype dome has been constructed in South Africa with promising results. It has been decided that this project will now be managed by APA in collaboration with AfAS. An online talk by Dr. Mohamad Abbas, from the Cosmic Dome Project, titled "A journey through portable planetariums" was organized on 29 July, along with APA and Sirius Astronomy Association.

An online seminar on citizen science to mainly amateur astronomers, was held, Dr Patrick Miller from the International Asteroid Search Campaign, and Dr Beatriz Villaroel from VASCO presented talks. This was well attended and fed into the existing pan-African IASC programs that are being coordinated by people in Nigeria. The committee also organized an online seminar on the James Webb Space Telescope that was launched in December. The telescope is expected to revolutionize astronomy, and Sarah Kendrew and Robel Geda from the JWST project led the seminar. A public awareness poster for the 4 December partial solar eclipse was issued.

Education

The Committee has had extreme difficulty in recruiting members, hence the activities as outlined in the AOP, have not been initiated. An interim solution of incorporating this Committee within the Outreach Committee was approved by the Executive Committee at its August meeting.

Membership

During the review of the initial batch of membership applications, it was realized that the criteria for the individual membership categories needed to be further refined to cater for new graduates since the current criteria did not specifically cater for them. A wider meeting was held on 25th June which included the Chairs of the Science and Outreach Committees as well as an Early Career Representative. Changes to the membership criteria were agreed upon and these were approved by the Executive Committee. The Committee had a few meetings before the Annual Conference to review as many applications as possible. To date, 227 of the 500 applications have been approved. All approved applicants have been informed of their membership status by email. Eventually they will also receive an official AfAS membership certificate. The names of all members are on the AfAS website. A new membership application form and workflow is being finalized, this will enhance the application process, upload of supporting documents as well as the review by committee members.

The discussion on membership fees and benefits is on-going. A proposal has been drafted and will now be presented to the incoming Executive Committee for comment.

The Membership Committee currently has only 3 active members and this needs to be expanded to ensure that the workload is managed, especially the membership drive and review of applications. A Call for additional members was made and as of 31st March 2022, 19 applications had been received. The Committee will meet during the first quarter of the new financial year to review the applications.

Science

The AfAS Seed Research Grant is one of the flagship programs designed by the Early-Career Working Group to support research projects in Astronomy (including Astrophysics & Space Science) by postgraduate students and/or early career

researchers based in Africa. Members of the Science Committee (David Buckley, Shazrene Mohamed and Jamal Mimouni) together with the Early Career Working Group reviewed 11 applications which were received in response to the inaugural Call issued last year. The Review Group proposed that 4 applicants be funded, two scored 85% or higher with the other two scoring above 75. The Executive Committee approved the recommendations, and the 4 successful candidates are:

Dr Ndiyavala-David Hambe, Assistant Lecturer at the University of Namibia, Namibia, “Modelling globular clusters as multi-wavelength emitters”.

Mr Trust Otto, PhD Student at the Mbarara University of Science & Technology, Uganda, “Am Stars with Hump and Spike features in their amplitude spectra”.

Ms Mavis Seidu, PhD Student at the Centre for Space Research North-West University, South Africa, “Triggered Star Formation Rate in the Milky Way”.

Mr Ambrose Eze, PhD Student & Assistant Lecturer at the Godfrey Okoye University, Nigeria, “Accretion flow and mass accretion rates/fluctuations in a Blackhole candidate: MAXI J1535-571”.

The successful applicants were informed in June, and all have accepted the grant together with the terms and conditions associated with the award. The next Call for Early Career grants for 2022 was issued on 15 November with a closing date of 31 Jan. A maximum of three grants of R20,000 will be awarded with the final outcomes expected early May.

The Science Committee is currently drafting a call for applications for Masters and PhD prizes, 4 prizes in each of North Africa, West Africa, East Africa and Southern Africa will be awarded. The grants will be R10,000 each and supporting motivation letters from supervisors and other senior astronomers will be required.

Delays related to IT issues and the site domain on the SAAO server continue to adversely impact timelines, an updated draft design for the science portal was presented to members of the committee by the Web Designer in November and is now available on the Slack Channel. (<https://kkhoele.co.za/afas/>). The portal will have links to other relevant websites, such as the SAAO, ESSTI and other African research centres. It will also contain some of the information from the other AfAS committees. The developer is in the process of linking videos from the previous AfAS conferences to the website through YouTube. Most of the videos have already been uploaded. Reports, operating plans and other documentation will also be accessible through the portal. A Slack channel is also planned for wider membership use via the portal.

The Astronomy in Africa Survey, launched in July 2021, is still in progress and the Committee has discussed ways to encourage people to complete the survey (e.g. incentive prizes). The AfAS South African science contact point, Dr Moses Mogotsi (SAAO), has been appointed by the South African IAU National Committee. The survey has been promoted through different recent virtual meetings and forums. Currently, 43 responses have been received covering 17 African countries, with 8 countries having multiple replies. Analysis of the survey is in progress and the final individual invitations will be sent to Astronomy in Africa leaders prior to closing the survey during the first half of 2022. Of relevance to the AfAS Survey is the African Union’s Space in Africa Survey which aims to obtain first-hand data through surveys for Earth Observation with a focus on academia, satellite communications, and Astronomy and Space Sciences. The initial deadline for the survey was 15 August 2021. Realizing the similarities and possible areas of collaboration, a team from the AfAS Science Committee and the Secretariat met with Space in Africa to discuss how the two organizations can work together on the surveys, including data sharing, reports, and recommendations. Space in Africa had extended the deadline to 30 September 2021 and AfAS provided some comments/inputs to the preliminary survey results at the request of Space for Africa, final results of the survey are awaited.

Discussions within the Science Committee are continuing for a science infrastructure flagship project. The results of the survey should help to inform the needs of the community in terms of access to research infrastructure. Current ideas being developed include the creation of additional data repositories (e.g. as may be proposed with IDIA for MeerKAT data) and any supporting infrastructure to allow access to archival data or data made available to the community in general. A specific initiative is a suggestion from the South African DSI, for AfAS to consider developing a continental optical telescope and data networks similar to the recently launched BRICS Intelligent Telescope and Data Network (BITDN). The BRICS project is being primarily hosted at SAAO and IDIA, with the plan to initially locate the BITDN office (with staff) within the AfAS Secretariat, where resources may be shared and synergies developed.

A one-day online workshop was held on 8 November following the development of a draft concept note to explore the possibilities of linking African observatories for collaborative science research and HCD development. The title of the collaboration is the **African Integrated Observation System (AIOS)**. Representatives from existing optical observatories across the African continent shared information on the status of the observatories, telescopes, instruments, and scientific capabilities, and discussed potential future collaboration possibilities and synergies with these and other projects. The rationale is to network African telescopes to allow for coordinated observations across the continent, leading to enhanced collaboration possibilities and capacity development for astronomy research. One major science driver is transient and time domain astronomy where the AIOS would receive, interrogate and react to discovery alerts from facilities around the world, including the future Vera C. Rubin Observatory, and automatically conduct follow-up observations of targets of interest. The planned network will be building on the SAAO Integrated Observatory and incorporate facilities like the Entoto Observatory in Ethiopia, the Bouzareah Observatory in Algeria, the refurbished Kottamia Astronomical Observatory in Egypt, Oukaimeden Observatory in Morocco, plus future optical telescopes in Burkina Faso, and Kenya (KOTI). In addition, university observatories (e.g. University of the Free State’s Boyden Observatory and the observatory at North-West University) will be involved.

The workshop also received a presentation on cloud technologies, data challenge aspects, and solutions the AIOS network could require. Further efforts are needed to organize more African-driven scientific meetings and technical focus workshops. Following the workshop, the observatories that will join the network are to discuss further details on both software and logistical protocols and how telescope time could be dedicated to AIOS programmes. Investigations

also need to be made on detailed technical requirements for a fully automated network. The AIOS will be developed and rolled out, and will include cloud technologies and big data aspects. The workshop endorsed the concept of the AIOS and AfAS, through its Science Committee, has the responsibility to drive the discussions and expand on the concept through, among other efforts, forming a working group and planning follow-up workshops. The webpage for AIOS is : <https://www.africanastronomicalsociety.org/african-integrated-observation-system-aios/> The AIOS was again presented at the AfAS General Assembly and some discussions were had with representatives of the Oukaimeden Observatory, in Morocco, during the meeting. It is hoped that during 2022 a visit might be possible from those working on the intelligent observatory projects at the SAAO.

In terms of Radio Astronomy development, J Chubueze has drafted a document on the African Radio Astronomy Network (ARAN) that was workshopped with the Department of Science and Innovation (DSI). The AfAS Secretariat will table the updated concept document to the AfAS Executive Committee for endorsement as one of the Science Flagship initiatives. This will also be brought to the attention of the GA2024 Science Committee. North-West University has supported the implementation of the radio interferometer and has agreed to fund a 4-dish unit at its remote observing station. SARAO is looking to expand this to AVN partner countries depending on the success of the NWU project. The intention is to mobilize all the interested parties to ensure a Pan African rollout of the project to benefit the whole community.

Following the interest expressed by the CHPC (Centre for High-Performance Computing) to collaborate with AfAS, J Chubueze has presented a document to the Science Committee which outlines potential areas for collaboration including support for training workshops, etc. The AfAS Secretariat has written to the CHPC Director outlining the proposal.

Following approaches made by C McGruder to interested parties, discussions were held on the possibility of resurrecting the ROTSE telescope at the HESS site in Namibia. This would potentially allow for science observations by the AfAS community, and, in particular, for fast transients. Negotiations have been complicated as ownership has been transferred to the owner of the HESS site, who plans to allow access to amateur astronomers and contact has been made with Clyde Foster, who is leading this effort. D Buckley contacted Michael Backes of UNAM who confirmed that UNAM has no interest in using ROTSE.

Fund-Raising

The Fund-Raising Committee met early September and again in December with the key discussion point being the planned workshop with potential funders, a draft concept note was developed by the Secretariat and used as a point of reference. It was agreed that an overview of AfAS and its key projects is required to inform the potential funders of the organization and its funding needs. It is intended to have the workshop in June 2022, C Takalana and Y Manjoo met with G Marshall in December to discuss a conceptual document on how to promote AfAS and its “value add” to attract potential funders/stakeholders.

BRICS

An initial draft of the Constitution for the BRICS Astronomy Association has been completed by Y Manjoo and presented at the BRICS Focal Point meeting which was held on 9 November. At this meeting, it was agreed that inputs will be sought from the Astronomy Associations within each country and a follow-up meeting will be held with representatives of the Astronomy Associations attending as well, to discuss the draft constitution and formation of a BRICS Astronomy legal entity. The follow-up meeting was held on 19th January, and it was agreed that a virtual office of coordinators from each country be established. This Office will be guided by an interim constitution which will be drafted by Y Manjoo. The Russia/Ukraine conflict has forced a slow-down in activities although the draft interim constitution is now with T Nemaungani for review and comment.

Initial discussions have been held between C Takalana and the web designer for the update of the BRICS website, all changes will be communicated to the BRICS Steering Committee. ASSAP has finalized the first edition of the BRICS Astronomy publication and it will be issued at an appropriate time given the conflict situation. Forewords have been written by the Minister of Higher Education & Science and Innovation for South Africa and the Ambassador of the Peoples Republic of China.

2.2.2 APA

APA is currently recruiting new members across Africa. Many planetaria have been badly hit due to the lockdown induced by the COVID-19 pandemic, this has resulted in a breakdown in on-going contact and the slow recruitment process.. Other means of contact are now being progressed. A major challenge is the AfAS membership as this has been interpreted as automatic APA membership as well. On 29th April 2021, a 2-hour virtual meeting was hosted by APA, new potential members were invited. The aim of the meeting was to inform members about APA, what has been achieved to date and the future plans. The Executive Committee members of APA and current projects were also introduced. Discussions were held especially with AfAS, OAD and IAU on how best to collaborate to further science and development through the planetarium world. After the meeting, a membership recruitment campaign commenced, this ended on 31 May. 2021.

The following working groups have been established and members have been encouraged to join these, a meeting was held on 12th July to recruit members to each group. Terms of Reference for each group have been finalized and approved by the Executive of APA..

- **Membership & News Committee (Chair-A Yinka):** The current membership now stands at 50 of which 39 are from Africa, Asia (6), Europe (2) and North America (3). The first meeting was held on 18/08/21, however only a

few people attended and some goals were identified but will be followed up at the next meeting. In the third quarter of the year, the APA staff member has worked on populating updates on the activities of African Planetarium Association (APA) on its website and the social media platforms. Such updates include invitation for applications for the AfAS 2022 Seed Research Grant and the launch of “Sida Tsoatsoas”.

- **Planetaria growth & Capacity building (Chair-N vd Merwe):** Two meetings were held: The first was held on the 1st November 2021 where the main focus was to get to know the members of the working group and to formulate a plan of how this working group will operate. During this meeting a survey was drafted with the aim to identify which workshops to prioritize. A second meeting was held on the 06th December 2021 to approve the survey which is now available online to complete. Preliminary results show a strong interest in Stellarium over other dome software. This will most probably be the first workshop that will be planned early in the new year. Equal interest has been indicated in “operating a mobile planetarium” as well as “Presenting a planetarium show”. A follow up meeting will be scheduled early in the new year, once sufficient people have had time to complete the online survey.

- **Partnership, Stakeholder relationship & fundraising (Chair- L Marchetti):** The Chair and Susan Murabana (APA Chair) attended the IPS Executive Meetings on the 25/09/21 and 12/12/2021. L Marchetti announced the interest by the IAU to work more closely with the IPS towards fostering the planetarium communities in the more disadvantaged areas. The APA will be a key player in implementing this initiative along with the other IPS regional associations and the IPS International Development Working Group. Activities will commence at the beginning of 2022.

A presentation about the possible activities that can be promoted by the IPS/APA and the IAU working together towards the IAU GA2024 has been given at the Africa Forum meeting by the chair of this working group (<https://astronomy2024.org/save-the-date-27-29-october-2021-forum-on-astronomy-in-africa-and-the-iau-ga2024/>).

The chair of this committee also presented at the IEEE visualization conference on the role of planetaria to advance research (<http://ieevis.org/year/2021/info/spotlights#spot4>)

A portable mobile planetarium has been acquired by the APA secretary in Nigeria and is currently under testing before it can be transferred to its next host.

- **Planetarium content creation (M Hoffman):** During the quarter, activities took place primarily through individual initiatives of members of the working group. This included two site visits. One of the aims of the working group is to facilitate sharing of content developed within the APA community with the rest of the community. In this regard, the experience of members of the Iziko Planetarium and the SAAO, in particular, Dr Sally MacFarlane and Dr Daniel Cunnam, are valuable.

At the Iziko Planetarium, Sally MacFarlane demonstrated the high-level full dome astronomy visualizations and at the Sutherland Planetarium the manager, Nico van der Merwe who is also an APA executive member, demonstrated the user- friendly Full Dome Pro software which enables almost effortless sharing of full dome content between planetaria. The working group aims to share the experiences indicated above with the much wider APA community.

APA provided R300K for the production of a planetarium film based on African culture titled “Starlore”. This production is co-funded by the APA, the NAC PESP and the Worldwide Indigenous Science Network. The film production was completed in May 2021. A short (~13 minute) full-dome planetarium show about African Starlore was created, focusing in particular, on Khomani San Starlore. The film is partially animated (~30%) to include traditional San Starlore and is presented in Afrikaans, the language of the people of the area, with English subtitles. The rural Khomani San people were engaged in the Northern Cape to collect and record an original Starlore story which was filmed and animated into a full-dome planetarium film. This is a unique collaboration between astronomers, artists, linguists and the Khomani community. A ‘flat’ 2D version of the full-dome film was also produced for standard screens for those who do not have access to the planetaria venues. In addition to local planetaria, this film will be distributed free of charge to the network of 4250 planetaria worldwide to celebrate our African Astronomy heritage on a global stage and to develop a global sense of Ubuntu: “we are all under one sky”. The film has been tested successfully at the Iziko Planetarium and Digital Dome in Cape Town, and the official launch was on 6th December at IZIKO. From the 7th December, the film is part of the public program on offer at The Iziko Planetarium and Digital Dome. The digital planetaria in Sutherland and Bloemfontein will also host the show in the coming months as the first steps towards national and international distribution.

The South African produced planetarium film ‘Rising Star’, has been added to the [ESO Astronomy](https://www.eso.org/public/videos/rising-star/) full-dome content database and is now available for international downloads via their website: <https://www.eso.org/public/videos/rising-star/>

The International Planetarium Society Emerging Committee has now been merged with the International Service Committee to form the International Development Committee. Susan Murabana (APA Chair), has been attending the meetings and contributing towards the further development of this committee.

The APA Executive agreed to support members to attend IPS conferences. The IPS has agreed to support this initiative with a donation of \$5,000. The funds were to be given as stipends for APA members to attend IPS 2022 in Russia. However, the conflict between Ukraine and Russia has led to the cancellation of the event and a virtual event is now

being planned. The funds will now be used to support mini-APA workshops within the four different regions, Southern Africa, Eastern Africa, Western Africa and Northern Africa.

2.2.3 AERAP

The highlight for the current year is the successful hosting of the AERAP Africa-Europe Science and Innovation Summit from the 14th to 18 June 2021. The event consisted of 71 sessions and two plenary meetings and attracted 299 speakers and 2200 registrants in addition to an unknown number of participants who used YouTube to access live sessions. Highlights included:

- The participation by 11 Ministers from both Europe and Africa
- Keynote speech by the editor of Nature, Magdalena Skipper
- Speeches by the Director-General's of the Karolinska Institute, INSERM and CERN, amongst many other high-profile speakers
- A series of training workshops which were organized by the European Patented Office, Cordis and Hyperion
- Participation by senior level officials from the European Commission, in particular, presenting advance information on the dedicated course for Africa under Horizon Europe

There was strong engagement with a range of policymakers who issued an invitation for others to provide input into key policy discussions. Numerous relationships and partnerships were formed in areas which included EU infrastructures, BBMRI and CERN. There are summary reports for each of the 71 sessions together with the recording of each session. The session reports will form the basis of key inputs for the EU-Africa summit now taking place in February 2022, along with other relevant meetings such as the United Nations General Assembly in September 2021. It is also anticipated that engagements with science related institutions in Africa will increase and enhance the AERAP active membership from Africa by a substantial number. AERAP was invited to participate in the UN Food Systems Summit on the 23rd September. There were follow-up meetings with several of the AERAP sub-groups with the Women in Science sub-group proposing specific initiatives and requesting engagements with three European Commissioners.

The AERAP Africa-Europe Science Collaboration Platform organized a roundtable discussion on 8 December 2021 to consider the contribution of science to the priorities for the EU-Africa summit. The purpose of the meeting was to promote awareness of the contribution of collaborative research and development as a critical aspect of EU-Africa relations and collaborations while recognizing the context of the United Nations Sustainable Development Goals, which provides a critical point of reference. The roundtable brought together a range of experts to preview the forthcoming EU/Africa summit, scheduled to take place on 17-18 February 2022. The focus, in particular, was on the contribution science can make to the keenly-awaited summit and how cooperation between stakeholders can influence the outcome of the meeting of EU and African leaders. The policy roundtable, organized by AERAP, gathered players from Europe and Africa to agree on critical priorities and, importantly, on how they plan to collaborate going forward together.

A post-Summit issue to deal with will be the sheer complexity of the EU. The bloc's 27 member states are not the same. They have different starting points and challenges, so diversity is critical in Europe. It is also fair to say that the 54 nations in Africa are not a homogeneous group either. As in Europe, they have different needs and expectations, so diversity is also critical in Africa. On top of this, there is the number of current initiatives, estimated to total 200, between Europe and its African partners. Together with the Commission, EU member states have been developing the idea of a European research area, where EU countries organize themselves to combine their efforts and support different endeavours. The EU does not yet have a common area with its African partners. Still, a joint innovation plan is, hopefully, in the pipeline for discussion at the EU/Africa summit. If so, that would send a strong message, the roundtable heard.

The African Union also has its specific expectations for the summit and the role of science. While the summit is an important milestone and an important event, it's also about taking the outcomes forward from the meeting with concrete implementation. The African Union has identified and developed two roadmaps to foster innovation, research and innovation between Africa and Europe: one in food, nutrition, insecurity in sustainable agriculture, and the other one in climate change and renewable energy. These two roadmaps have defined how African institutions, researchers, innovators are working together.

A further contribution to the dialogue came from UNESCO, the United Nations Educational, Scientific and Cultural Organization. It pointed out that its General Assembly has just endorsed the first-ever recommendation on open science, which could be seen as a perfect normative instrument to enable scientific collaboration.

The roundtable also heard that the European Commission, with its new comprehensive strategy on Africa, has put Research and Innovation at the heart of its work with the continent. The design highlights the link between developing research innovation and promoting growth and sustainable jobs.

It was also agreed that science and scientific advice should be at the heart of the decisions African Union and European Union leaders will be taking in Brussels. Participants also want the EU/Africa partnership to focus on public health. This has been highlighted with the European and developing countries clinical trials partnership, which is at the centre of current collaborations. The green transition is also essential, and speakers outlined what they have been already doing in the area of climate change, as well as food and nutrition, security, sustainable agriculture, and renewable energy partnerships.

The AERAP Africa-Europe Science Collaboration Platform organized side events at the AU-EU Summit on 14-17 February. The purpose of the meeting was to promote awareness of the contribution of collaborative research and development as a critical aspect of EU-Africa relations and collaborations, in particular, in addressing global challenges together.

This EU-AU Summit Side Event was the occasion to raise awareness of the potential of **Science Diplomacy (SD)** as a tool for African-European cooperation and to cast a light on it in the future cooperation of the two continents. The **DLR Projektträger**, in partnership with the **EU Science Diplomacy Alliance**, gathered policy-makers, scientists and stakeholders for an interactive exchange around the questions:

- ⇒ How can Science Diplomacy be strategically implemented in African countries and the continent?
- ⇒ How can Science Diplomacy help to address the challenges posed by the endeavour to enable a sustainable and green African and European development while addressing the SDGs?
- ⇒ How can Science Diplomacy support the development of the AU-EU partnership?

In her keynote address, **Nienke Buisman**, Head of Unit, Global Approach and International Cooperation in R&I, DG Research and Innovation, European Commission, highlighted examples of Science Diplomacy in the EU-AU context. The EU-South Africa cooperation on Research Infrastructure, the Square Kilometre Array (SKA) Project can be counted as one example for **Science for Diplomacy**. She further presented the AU-EU High-Level Policy Dialogue on Science, Technology and Innovation and the 'Africa Initiative' in Horizon Europe as key elements of the SD.

2.2.4 ASSAP

The Botswana-Namibia roadshow was organized from the 15-18 June 2021 but the Namibian leg was postponed at a late stage due to the surge in COVID-19 cases in that country. The Botswana leg of the roadshow included several back-to-back meetings such as those with the former Mayor of Gaborone, Nelson Ramaotwana, and government officials. The aim was to obtain an understanding of the government structures of the country relating to Science, Technology and Education and were guided towards initiating key dialogues with senior decision-makers in the country. A number of academics from the University of Botswana (UB) and the Botswana International University of Science and Technology (BIUST) in Palapye, were also engaged and distribution arrangements for the ASSAP magazine were agreed upon. The Astronomical Society of Botswana also committed to assist with content and distribution. Interviews with the local media included one with Botswana's biggest youth radio station, Yarona FM, and being profiled in the national Botswana Guardian newspaper. ASSAP was successful in securing the services of three senior Botswana journalists as well as three scientists who will now be trained to write a science beat for the African Science Stars magazine.

The ASSAP Team were in Sutherland in February 2022 to run a workshop for youth interested in astronomy or space science, in citizen journalism and writing. They also joined the SANSA Outreach team during their Western Cape School Roadshow programme. The editorial team, along with C Takalana, attended a career summit expo at the Nelson Mandela Bay Science Centre Science in Kariega, Eastern Cape in March 2022.

Several key South African Stakeholders were engaged during the the year with specific reference to the magazine, these included:

- The Head of Communications at SKA South Africa, Mr Khulu Phasiwe
- The OAD team in Cape Town.
- Mr Sivuyile Manxoyi who is the Manager of the SALT Collateral Benefits Program at SAAO
- Head of the Secretariat of AfAS, Dr Charles Takalana,
- NRF/SAASTA, Fort Hare University, University of Venda and the Vuwani Science Centre.
- Sci-Bono Center in Johannesburg
- University of Johannesburg Science Centre
- I-SET UNISA Hub in Pretoria
- Sci-Enza in Pretoria
- Mpumalanga Basic Education Department

ASSAP was responsible for the media release on 8th June to 152 members of the media, on the AfAS /OAD Memorandum of Agreement. Local, national and community media outlets received the press release titled: "Strides Towards Developing Africa Through Astronomy". This was well received, and 9 journalists requested additional information and were referred to Charles Takalana and Kevin Govender.

The ASSAP team also presented the African Science Stars publication to the Steering Committee of Stakeholders that included SKA, DSI, AfAS and SAAO. ASSAP will be working closely with members of this Committee and will also have direct access to various experts from each of these entities.

The second edition of the African Science Stars was distributed from October. The editor of the magazine was interviewed by different media houses, this included an interview with the SABC news. Physical copies of the magazine will be distributed in key SADC countries through a series of workshops and roadshows. The production of the 3rd edition of the magazine commenced during the current quarter. The Western Cape Library Service has agreed to distribute the publication to all 374 libraries in the province

Membership certificates were designed for both AfAS and APA together with branding material for AfAS.

During the year, the African Science Stars team conducted road shows in historically disadvantaged schools. These were used to promote Astronomy and Space Science careers to high school students, the magazine was also provided to the schools.

ASSAP attended and covered the "Indigenous Astronomy & Storytelling" event at a Primary school in KwaZulu Natal. The event was hosted by Gcina Mhlophe, a South African anti-apartheid activist, actress, storyteller, poet, playwright,

director and author. Social media and content created at the event got a lot of engagement and traction across all the platforms.

The DSI has mandated ASSAP to actively promote BRICS Astronomy through the publication of magazines/pamphlets, branding and marketing material, and the provision of public relations services. This initiative will be managed through AfAS. Social media accounts for both the BRICS Working Committee and the BRICS Astronomy magazine have been created whilst production of a launch edition of the magazine has been completed and will be distributed during the first quarter of 2022, the release has been delayed due to the Russia/Ukraine conflict.

ASSAP has signed a Memorandum of Agreement with the Africa Desk, the latter will facilitate stakeholder engagements and issue alerts on upcoming events of ASSAP and be responsible for promoting ASSAP within the AU as well as facilitating on-going communications.

A competition to win a “telescope” was advertised in the latest edition of the Science Stars magazine and is also currently being run on social media, numerous entries have been received thus far.

ASSAP was also present at the premiere of the planetarium film ‘Sida Tsoatsoas – Our Beginning’ at the IZIKO Planetarium in Cape Town. It is the first digital planetarium film produced in Africa to feature Indigenous African Starlore.

3. Key Risks and Challenges

The AfNWA is currently hampered by lack of resources including the availability of Committee members, the plan is to recruit volunteers for the various sub-committees which will focus on specific activities. It has been agreed that the AfAS Secretariat will assist with communications/website management and some office tasks. The virtual training workshops have also presented its own challenges in terms of registrations and actual attendees and creating an interactive environment. Physical outreach/education activities cannot currently be held due to the COVID pandemic, this will be addressed through the planned Community Meetings where practical.

There are still delays in moving the AfAS website to the new domain name that is beyond the control of the Communications Committee and Secretariat. The move is totally dependent on SAAO IT working in close consultation with the Web Developer. This has also delayed the development of the Science Portal. The Secretariat is actively seeking alternative solutions.

At ASSAP, the pandemic continues to adversely affect operations as evidenced in the cancellation of the Namibian roadshow. Physical workshops and interviews remain a risk within this environment, thus the reliance on virtual communications will continue but infrastructure availability across the continent for effective interactions is limited. The costs for the physical production and distribution of the magazine are escalating rapidly and a more efficient system needs to be investigated including sharing resources with other existing deliveries that go to the countries that ASSAP wishes to have a presence in. Reliance on third parties for local distribution is a huge risk and a system will need to be developed to track arrival, subsequent distribution and actual receipt by people targeted to receive the magazine. An in-house Distribution Unit has therefore been established within ASSAP to facilitate an efficient and effective distribution system. Another major challenge is to ensure that the content is easily understood by youth and general public alike, this requires the training of magazine journalists in converting scientific jargon to understandable articles.

4. Key Performance Indicators/Outputs

AfAS-KPIs	TARGET	ACHIEVEMENT
Science Strategy	March 2022	No updates, dependent on survey results
Annual Conference & General Assembly	March 2022	Successfully completed with at least 150 attendees and new EXCO elected.
Database Portal	March 2022	Initial design completed and demonstrated to the Science Committee. Delays in implementation due to technical issues and lack of urgency from both SAAO IT and Web Designer. Seeking a new designer and a dedicated server.
Annual Scholarship Awards (including AfNWA)	March 2022	2 awards given in March

Affordable Mobile Planetarium	Feasibility study and Prototype design-March 2022	In-house committee study yielded no suitable design. Project now responsibility of APA in collaboration with AfAS. Require re-constitution of working group and terms of reference. Proposed manufacture by a scientist in Morocco did not materialize.
Amateur Radio Telescope	Dec. 2021-Prototype Design	Concept note to be presented to EXCO for approval. NWU agreed to fund interferometer
OAD Galileoscopes	Funding & Distribution Plan- December 2021	Some telescopes given at Annual Conference and 1 each to Chad and Niger
Astronomy Competitions & Experiments for schools/public	Competitions to be introduced during 2021 and experiments to be ready for implementation from March 2022	Lack of resources within Education Committee has delayed this activity.
Completion of new website	March 2022	Technical issues with SAAO IT and web designer hampered development.
Communications Strategy	March 2022	First Draft Compiled-awaiting inputs from other committees
Finalization of current membership applications	July 2021	Memberships have been approved for all applications to early March 2022. This phase now complete.
New membership application and review process	September 2021	New process and form being developed, will finalize by June 2022.
Membership Recruitment Strategy & Implementation Plan	December 2021	Awaiting new application process
Membership Fees structure & Benefits (Including country and institutional membership)	December 2021 for review by EXCO and GA presentation in March 2022	Discussions held by Membership Committee in December and will be presented to incoming EXCO during 2022.
Online platform to access astronomy courses offered by institutions in Africa	March 2022	Delayed due to insufficient resources within Education Committee
Database for Scholarships & Career Opportunities	March 2022	As per above
Training courses offered by AfNWA	May & October 2021	Three held in May, June & August
AfNWA Newsletter & Monthly News	From July 2021	First publication in July 2021
Survey on low representation of women in astronomy & science	March 2022	Now dependent on Africa survey
Status of Women in astronomy & related fields-Evaluation	September 2021	Delayed, incorporated within Africa survey.
Virtual Community meetings	From September 2021	Commenced in July but only 1 to date due to scheduling difficulties

AERAP-KPIs	TARGET	ACHIEVEMENT
Engagement with EU officials	80	147
Number of Covid 19 activities identified for African researchers	100	47
Number of EU Proposal submitted	4	3
Number of AERAP partners engaged	200	872
Website updates	50	250
Press releases	30	14

ASSAP-KPIs	TARGET	ACHIEVEMENT
Workshops in SADC Region	Dates as per activity schedule above	One held in Botswana and Namibian event cancelled due to COVID regulations.
Four publications in 2021 with 10000 hard copies per publication	Dates as per activity schedule above	Two publications issued with the 3 rd in early stage of production. Second

		publication distribution commenced in October. BRICS publication ready for issue but delayed due to conflict.
Women's Day Virtual Workshop	9 th August 2021	Cancelled

APA-KPIs	TARGET	ACHIEVEMENT
Website maintenance	On-going	To be maintained by AfAS Secretariat, no progress
Social media campaigns	On-going	On-going
Planetarium Film	May 2021 production, August 2021-distribution	Official launch in Cape Town in December. Distribution on the continent will commence in 2022.


5. Financial Performance (Financials are presented on "Cash" basis)

ITEM	ANNUAL BUDGET (R000's)	YTD BUDGET (R000's)	YTD ACTUALS (R000's)	COMMENTS ON VARIANCES
Income	7350	7350	8130	Additional BRICS grant and interest income
Salaries & Consultancy	(1484)	(1484)	(1471)	-
Running Expenses	(2195)	(2195)	(923)	Lower IT costs, delays in Data Base Portal Development Committees have not spent as anticipated
Capital Expenditure	(20)	(20)	(85)	Office move at SAAO delayed to May 2021, AfAS had to provide "own" furniture
Grants Paid	(3140)	(3140)	(5144)	BRICS payments to ASSAP
Student Bursaries	(240)	(240)	(60)	EAFIR scholarship payments delayed
Total Expenditure	(7079)	(7079)	(7683)	
Previous year cash carry forward	554	554	554	
CASH ON HAND	825	825	1001	

PROGRAMME/PROJECT	ANNUAL BUDGET (R000's)	YTD BUDGET (R000's)	YTD ACTUALS (R000's)	COMMENTS ON VARIANCES
AfAS (Core)	(1867)	(1867)	(2390)	Higher conference costs of R500K
AfAS (Committees)	(1336)	(1336)	(123)	Committees have not progressed activities as expected
AERAP	(1575)	(1575)	(1575)	-
ASSAP-AfAS	(2208)	(2208)	(2194)	Increase in magazine distribution costs offset by lower travel and operating costs
ASSAP-BRICS	(600)	(600)	(405)	Distribution and print of magazine delayed, consequently 2 nd edition production delayed as well.
APA	(925)	(925)	(432)	Lower operating costs including grants
BRICS	(160)	(160)	(142)	Website development slower than anticipated
TOTAL COSTS	(8671)	(8671)	(7261)	

- Note- All revenue/costs in above table are on accounting basis. ASSAP based on actual costs incurred and not on grant received from AfAS

5. Approval

Submitted by Signature	 <hr/>
Name	Professor Jamal Mimouni
Date	08th April 2022
Designation	Immediate Past President, AfAS (Ex-Officio member of EXCO wef 01/04/22)