



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



Annual Operating Plan

2020/21

PROGRAMME: African Astronomical Society (AfAS)



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1. Rationale/background of AfAS

Over the past two centuries professional astronomy activities on the African continent have increased and this has led to some growth in capacity. Collaborations with partners from outside the continent through various initiatives has 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 National Astrophysics and Space Science Programme (NASSP) is a multi-institutional postgraduate programme training graduates in astronomy, astrophysics and space science, which has alumni from across the African continent. The purpose of these projects is to develop skills using astronomy in a number of African countries. The DARA project in particular 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 apart from the HartRAO telescope in South Africa.

In addition to 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 several astronomy initiatives in Nigeria. Recently, discussions around the possibility of setting up an Astronomical Observatory and related facilities for education and outreach in Kenya began. Running in parallel to the abovementioned 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 on 25-26 March 2019. The meeting was attended by around 80 participants from 20 nations including astronomers, public stakeholders and research organisations. 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 realise 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 staffed AfAS secretariat for three years, commencing from April 2019 to March 2022.

In addition, there are some major projects which will now be under the auspices of AfAS in terms of the provision of management oversight and appropriate inputs/advice to ensure that these projects' objectives are achieved, these were previously managed by the DSI and include:

- 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 a potential relevance to African partners. The regular AERAP webinar will include Covid-19 on the regular agenda and also dedicate a number of sessions to Covid-19 with the objective of information sharing and partnership development.
- ii. African Science Stars – 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.

2. Summary of Key Operational Objectives for the current year

2.1 AfAS Core/Projects

Development of astronomy collaborations through the establishment of science working groups in Africa and establish contacts with international organizations.
Development of joint research proposals
Enhance science collaborations through access of African/International research infrastructure
Regional meetings to foster collaborations and communications as well as regular online science discussions
Development of a science data portal which include astronomers, students, facilities, collaborations, publications, etc which will provide a comprehensive source of information on the astronomy community in Africa
Human Capacity Development through development of lecture material, curriculums, short courses/workshops, offer of scholarships for early career researchers and annual awards for outstanding post-graduate students
Support of Archeoastronomy to facilitate the development of African Astronomy Heritage projects
Develop a workflow membership application, review and approval system
Develop a membership fee structure
Develop a membership benefits plan together with a member's recruitment plan
Develop a fund-raising strategy to reduce the dependence on South African Government funding
Identify potential sources of funding from both the public and private sectors across the international domain
Lobby and to engage funders on the value proposition of AfAS
Develop strategic funding partnerships with relevant funding institutions, donors, philanthropists, etc
Develop an affordable mobile planetarium
Develop a radio telescope for amateur astronomers
Introduce astronomy in schools
Launch Pan-African campaigns
Launch Amateur Astronomy Associations in African countries
Re-design the AfAS website
Develop community discussion guides
Establish social and electronic media platforms
Establish print and visual communications
Establish astronomy research programmes in tertiary institutions
Creation of astronomy related educational resources
Make students throughout Africa, aware of all astronomy related scholarships

2.2 AERAP

Advance AERAP networks and relationships with research users
Involving research users at all stages of the research processes, including working with user stakeholder and participatory groups in Africa and the European Union, including policymakers and regulators
Develop flexible knowledge exchange strategies in Africa and the European Union, which recognise the roles that partners and collaborators may wish to play in light of the policy priorities
Developing a good understanding of policy/practice contexts and encouraging users to bring knowledge of context to researchers and policymakers
Develop to portfolios of radio astronomy and related research activity that build up reputations with research users and demonstrate innovation more generally
Illustrate how one can contribute to policy objectives in the EU and Africa;
Develop focus activities around Covid-19 research to the European Union and Africa
Work towards the creation of excellent infrastructure, leadership and management support for the anticipated big data platform between Africa and the EU;
Providing feedback to policymakers
Constantly re-evaluate AERAP in the context of global challenges as they relate to the European Union and the African Union

2.3 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 organisations and private companies.

2.4 APA

Growing the expertise of its community
Focus on having a significant impact outside its own membership
Collaborating with various partners and stakeholders.
Networking with other scientific bodies.

The COVID-19 pandemic which has markedly affected the entire world, will no doubt adversely affect the activities of AfAS, especially in 2020 and 2021. However, the Society will use its best endeavour to achieve its operational objectives in 2020/21 through extensive use of digital platforms. Activities such as student exchange programmes, access to telescopes, the annual conference and outreach will be closely reviewed and updated to take account of the pandemic related restrictions and alternative plans will be developed where feasible.

3. Major activities for the year

ACTIVITY	TIMELINE	ESTIMATED COSTS (R000's)
3.1 AfAS		
Annual Conference and Business Meeting	March 2021	445
Appoint Research points of contacts in each country	June 2020	-
Astronomy in Africa Survey	September 2020	-
Development of Astronomy in Africa Roadmap	December 2020	-
Commence establishment of science work groups	June 2020	50
Commence Monthly Science Discussions	July 2020	-
Establish Regional meetings	July 2020	20
Develop Science Portal/Data Base	December 2020	250
Develop teaching resources	December 2020	-
Establish Scholarship Committee to source funding for post-graduates/post-docs	June 2021	40
Develop AfAS Annual Awards Criteria	September 2020	50
Initiate Archeoastronomy Project	October 2021	-
Update the AfAS Website	March 2021	8
Communications Strategy	Initial draft by March 2021	-
Initiate Community Discussions	Commence 1 st June 2020, on-going	12
Commence processes for print & visual communications	Commence 1 st June 2020, on-going	36
Set-up social networking platforms	March 2021	5
Review and acceptance of membership applications	September 2020	-
Update of membership	September 2020	17

application process		
Develop membership fees structure	March 2021	-
Develop membership benefits profile	March 20221	-
Develop membership recruitment strategy	March 2021	-
Online platform for educational resources	March 2021	1
Develop educational content	Commence 1 st June2020, on-going	50
Scholarship availability platform	March 2021	-
Develop Fund-Raising Strategy	February 2021	-
Affordable Mobile Planetarium	On-going	65
Amateur radio telescopes	On-going	65
Design and production of resource materials	On-going	25
Pan-African astronomy events	On-going	25
Amateur astronomy starter kits	On-going	31
COVID-19 related activities	July 2020 – December 2020	180
TOTAL		1375
ACTIVITY	TIMELINE	ESTIMATED COSTS (R000's)
3.2 AERAP		
AERAP Conference call	23 Apr 2020	25
Meet with European Parliament MEPs	25 Apr	60
Report on key areas of science to be covered by AERAP activities Including COVID-19 , bioeconomy, high performance computing , Green Deal	2 May	35
AERAP subgroup on women meet to develop input paper for the high level policy dialogue on science and technology between the EU and AU scheduled for the 18th of May 2020	5 May	90
Developing AERAP group priorities for input to Horizon Europe and NDICI Programmes	17 May	130
Informal contact meeting with	24 May	65

members of the European Commission services including for development, research and industry		
Conference call Covid-19, and women in science	8 Jun	60
Conference call	10 Jun	20
Seminar, Brussels, Advancing Africa-EU priorities for Horizon Europe and NDICI, including Covid-19 in Africa	2 Jul	275
AERAP conference call	10 Sep	20
AERAP and the SDGs: United Nations general assembly 75, including Covid-19 session, and geosciences	15 Sep	130
EU research and innovation days	23 Sep	120
AERAP conference call focused on Horizon Europe calls for proposals	10 Oct	28
African Union-European Union Summit, Brussels	27-28 Oct	200
AERAP conference call focused on intellectual property	10 Nov	25
AERAP Conference call focused on Covid 19	8 Dec	27
Meeting of all AERAP Subgroups	10 Jan 2021	75
Highlight contributions AERAP can make to the Portuguese Presidency priorities in the area of competitiveness and research	January	25
Proposal submissions ongoing for Horizon Europe	February	45
Proposal submissions ongoing for Horizon Europe	March	45
TOTAL		1500

ACTIVITY	TIMELINE	ESTIMATED COSTS (R000's)
3.3 ASSAP		
Establishing the African Science Stars Awareness Publication (ASSAP) for March 2021 launch	March 2021	1330

Workshops & Mini-events	March 2021	220
Covid-19 Special Publication	October 2020	200
Print of launch Edition of magazine (8000 copies)	February 2021	250
TOTAL		2000

ACTIVITY	TIMELINE	ESTIMATED COSTS (R000's)
3.4 APA		
Website Design	April 2020 – 31 st March 2021	20
Establishing APA as a Legal Entity	August 30th	10
Meeting and travel support	April 2020-March 2021	130
Normal APA activities support	April 2020-March 2021	426
APA COVID-19 activity support (e.g. OAD call and independent call)	July 2020-December 2020	80
TOTAL		666

In response to the adverse impact of COVID-19, AfAS, in collaboration with the Office for Astronomy Development (OAD) will fund some 9 projects across the African continent where astronomy is used as a platform to address critical needs in African countries to overcome some of the difficulties created by the pandemic. These nine projects have each been allocated R20000 from the limited budget available to AfAS. All projects will be managed by the OAD and will commence from 1st July 2020; it is anticipated that these will be completed by the end of 2020.

The projects are funded from both the AfAS core budget and by APA, and are listed below:

AfAS

- Distance Learning for Home-Bound Students Amid COVID-19 (Tanzania)
- e-Amanar: Under the same sky connection (Sahrawi refugee camps near Tindouf, Algeria)
- Astro-Art Contest for Schools Kids (Nigeria)
- Providing astronomy inspiration & Hygienic Supplies to underserved families at high risk of infection from Covid-19 (South Africa)
- Protect Our Stars (POS) (Bukina Faso)

APA

- Solar Powered Foot-activated Hand Washing Water Dispensers (Kenya)
- Teacher Training on Teaching Science (Physics) and Mathematics using Astronomy and Astrophysics (Uganda)
- Development of online astronomy lessons for students in Ghana (Ghana)
- New Planetarium shows in the era of Coronavirus (Arabic speaking countries)

4. Key Performance Indicators/Outputs

AfAS-KPIs	2020/2021
Updated website	March 2021
Annual Conference & Business Meeting	March 2021
Fund-Raising Strategy	Feb. 2021
Draft Communications Strategy	March 2021
Astronomy in Africa Survey	Sept. 2020
Astronomy in Africa Roadmap	Dec. 2020
Science Portal/Database	Dec.2020
Annual Awards Criteria	Sept. 2020
Social Networking Platforms	March 2021
Membership application outcomes	Sept. 2020
Membership Processes and benefits	March 2021
On-line educational platforms	March 2021
Mobile planetaria, amateur telescopes and starter kits, outreach resource development, amateur astronomy societies and pan-African campaigns	Commence July 2020, on-going

AERAP-KPIs	2020/2021
Engagement with EU officials	80
Number of Covid 19 activities identified for African researchers	100
Number of EU Proposal submitted	4
Number of AERAP partners engaged	200
Website updates	50
Press releases	30



ASSAP-KPIs	2020/2021
A special edition of the SADC African Science Stars magazine in the first year to be made available both digitally and in hard copies – as well as special editions of the other regions in the outer years. This special edition will have a print run of 8 000 copies in the first year, 10 000 copies in the second year and 12 000 copies in the third year.	March 2021
A website for the ASSAAP initiative.	March 2021
An event with relevant stakeholders to solicit inputs and mobilise support of the initiative.	March 2021

APA-KPIs	2020/2021
NPO registration: Complete the registration of the APA as a Non-Profit Organisation and open a dedicated bank account.	August 2020
Website: Create and maintain an active website containing the following: <ul style="list-style-type: none"> ● General information, contact details and history of the APA. ● Database of African Planetaria, linking the individual Planetarium websites to the APA website in order to create a centralised website for all the planetaria of Africa. ● Ideas on how to start up a Planetarium with a collection of stories and advice from African Planetaria. ● Online hub to share media content, free videos/software as well as locally produced content. ● Astro Tourism resources section. 	March 2021
Social Media: Create and maintain active Facebook, Twitter, Instagram, YouTube and other social media accounts for the purpose of promoting APA and its member Planetaria.	March 2021
COVID 19 Project: The onset of COVID-19 pandemic has changed lives of people drastically. APA is fully committed to help in the alleviation of the COVID-19 – induced stress/pressure. This we hope to achieve by following the SA government guidelines and addressing part of our yearly budget towards this cause. We will apply the dedicated budget to support activities devoted to address COVID-19-related challenges. In this regards we plan e.g. to collaborate with the OAD in co-funding projects selected through the OAD COVID-19-project call; to create an <i>ad hoc</i> APA COVID-19 project call for APA members.	March 2021

5. Annual Budget

ITEM	AfAS ANNUAL BUDGET (R000's)	AERAP ANNUAL BUDGET (R000's)	ASSAP ANNUAL BUDGET (R000's)	APA ANNUAL BUDGET (R000'S)	TOTAL BUDGET (R000's)
Income	2984	1 500	2000	646	7130
Salaries	(250)	(941)	(800)	(200)	(2191)
Running Expenses	(1944)	(559)	(1020)	(306)	(3829)
Capital Expenditure	(40)	-	(180)	(40)	(260)
Grants Paid	(750)	-	-	(100)	(850)
Student Bursaries	-	-	-	-	-
Total Expenditure	(2984)	(1500)	(2000)	(646)	(7130)
NET FUNDING	-	-	-	-	

5. Approval

Submitted by Signature	 _____
Name : Y E Manjoo	
Date : June 2020	
Approved by Signature	 _____
Name : Jamal Minouni	
Date : June 2020	
Designation	