ISSN 0024-8266

mnassa

monthly notes of the astronomical society of southern africa

Volume 81 Nos 9-10 October 2022

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DART impact on binary asteroid Didymos as captured by Berto Monard from Calitzdorp with a 12-inch telescope. See P136.

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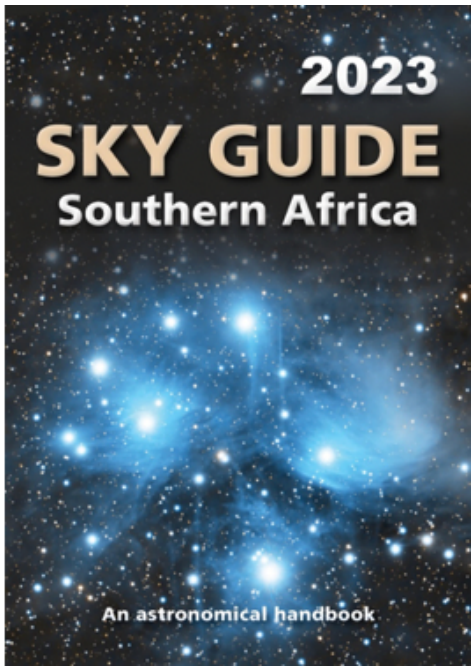
Vol 81 Nos 9-10 October 2022

ASSA News

Sky Guide 2023



The 2023 ASSA Sky Guide Southern Africa, edited by Auke Slotegraaf and published in cooperation with Struik Nature, is now being printed. To increase its appeal to the general public as well as to astronomical neophytes, this year's edition features extended geographical coverage, many more (local) astrophotos, and a great many more simple star charts ideal for beginners and/or those who live in a city.

Published annually for the last 78 years, *Sky Guide Southern Africa* is a practical resource for all stargazers, whether novice, amateur or professional. It highlights the cosmic events for each month of the upcoming year, including planetary movements, predicted eclipses and meteor showers. Star charts plot the evening sky for each season, facilitating the identification of stars and constellations. The guide contains a wealth of information about the Sun, Moon, planets, comets, meteors and bright stars, with photos, diagrams, charts and images.

A special download is available, with detailed tables of Sun/Moon rise/set, astronomical twilight and other items for the following locations: Bloemfontein, Cape Town, Durban, Harare, Johannesburg, Windhoek, Gaborone, Maputo, and East London.

ISBN: 9781775848110 | **RRP**: R160.00 **ePub ISBN**: 9781775848127

My Observation of the DART Mission to Dimorphos

Berto Monard, Klein Karoo Observatory.

I got an email from Gianluca Masi, the Director of the Planetarium in Rome, a professional astronomer. I knew him from before 2000 via contributions at the VSNET website in Japan. He is an Astronomy populariser of repute and has a lively website for his Virtual Telescope Projects.

Gianluca has been following the DART mission since its launch and was determined to show its collision impact live via a telecast to the world. But this time he would not be able to bring live observations using his remote telescopes. The event would take place too far South.

He did however remember me to be a keen and hopefully willing observer of the southern skies. That's how I got involved with this project. We had some discussions about observing details, imaging constraints and schedule for the night of impact. We had some trial 'studio' sessions to find out if it would work from here. This was all new to me and I learned a lot in the process, a new endeavour in the world of Astronomy.

As the night of the impact came, weather would throw out most of the intended plans. Weather predictions for the time of impact were as bad as could be: mostly cloudy and around midnight it looked every bit like that and worse. We even had some rain around 10pm. In addition the whole of the observing session would be under load shedding; ESKOM power cuts. The plan had been to start observations 90 minutes before impact and the broadcast a bit later. This was not going to be and the whole project was close to be abandoned.

However with 2 holes showing in the fully clouded sky, and seemingly thousands of keen astrophili already tuned in onto the announced broadcast URL, I decided to go ahead, open up the observatory, set up the telescope, log in onto the target, and started to observe within 5 minutes. Time had progressed and it was already less than 15 minutes before the impact.

A NASA satellite with a non negligeable weight would slam into Dimorphos, the small moon of asteroid Didymos, at extremely high velocity. What effect would show on cloud affected images taken from Calitzdorp?

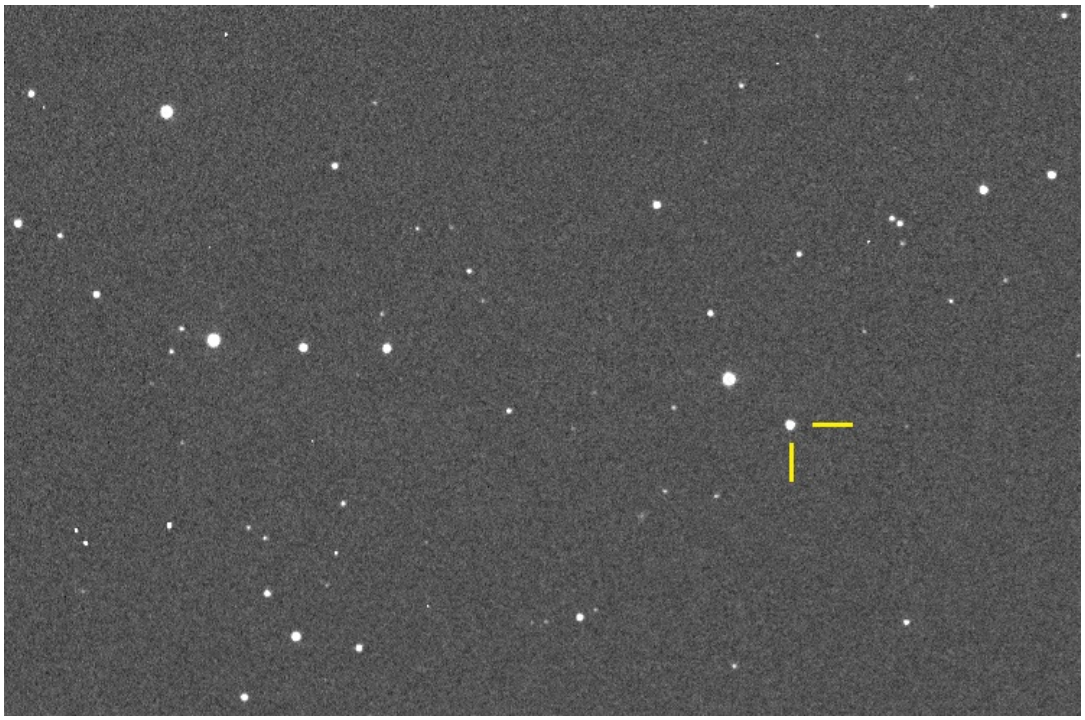


Fig 1. Dimorphos approaching Didymos; about 5 minutes before impact

The brightness of the undisturbed asteroid pair was around 14th magnitude and most of it would come from Didymos, the larger of the two. We did not know what exactly to expect, possibly a sudden brightening, just noticeable on an image just after the impact.

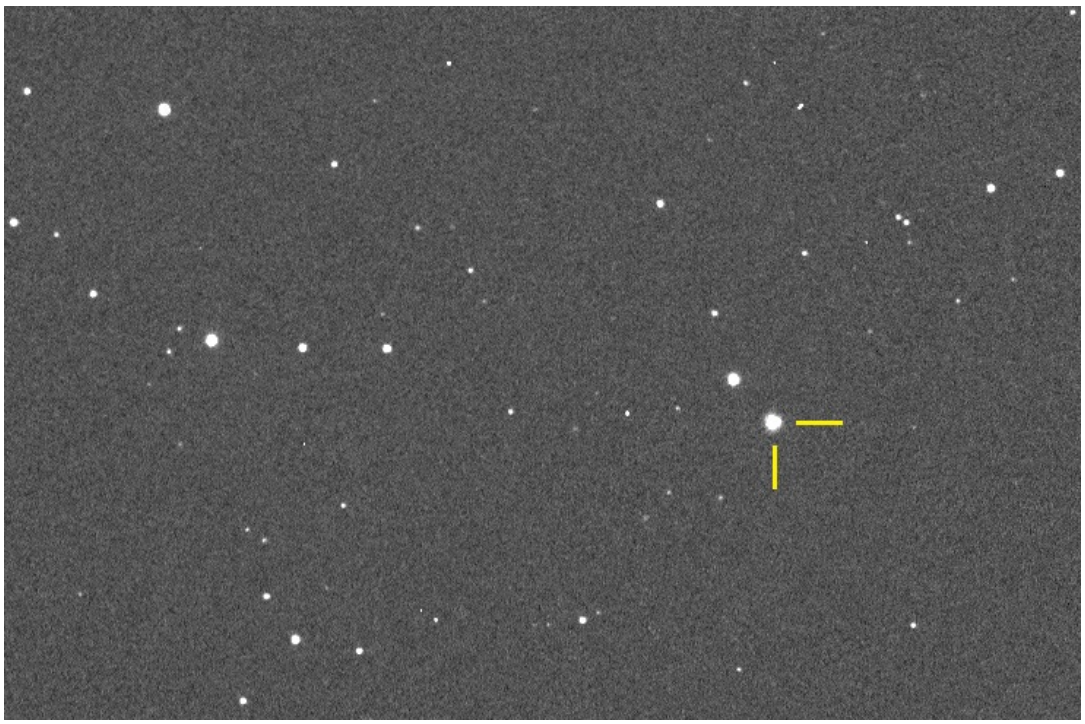


Fig 2. Marked brightening of Dimorphos during impact

What happened was more than that, a live spectacle being shown from one image to the next, with the starlike point of light from the asteroid starting to glow brighter, transforming into what looked more like a comet with a coma of light, which then was moving eastwards, away from the asteroid. This was indeed more than was expected and good reason for excitement.

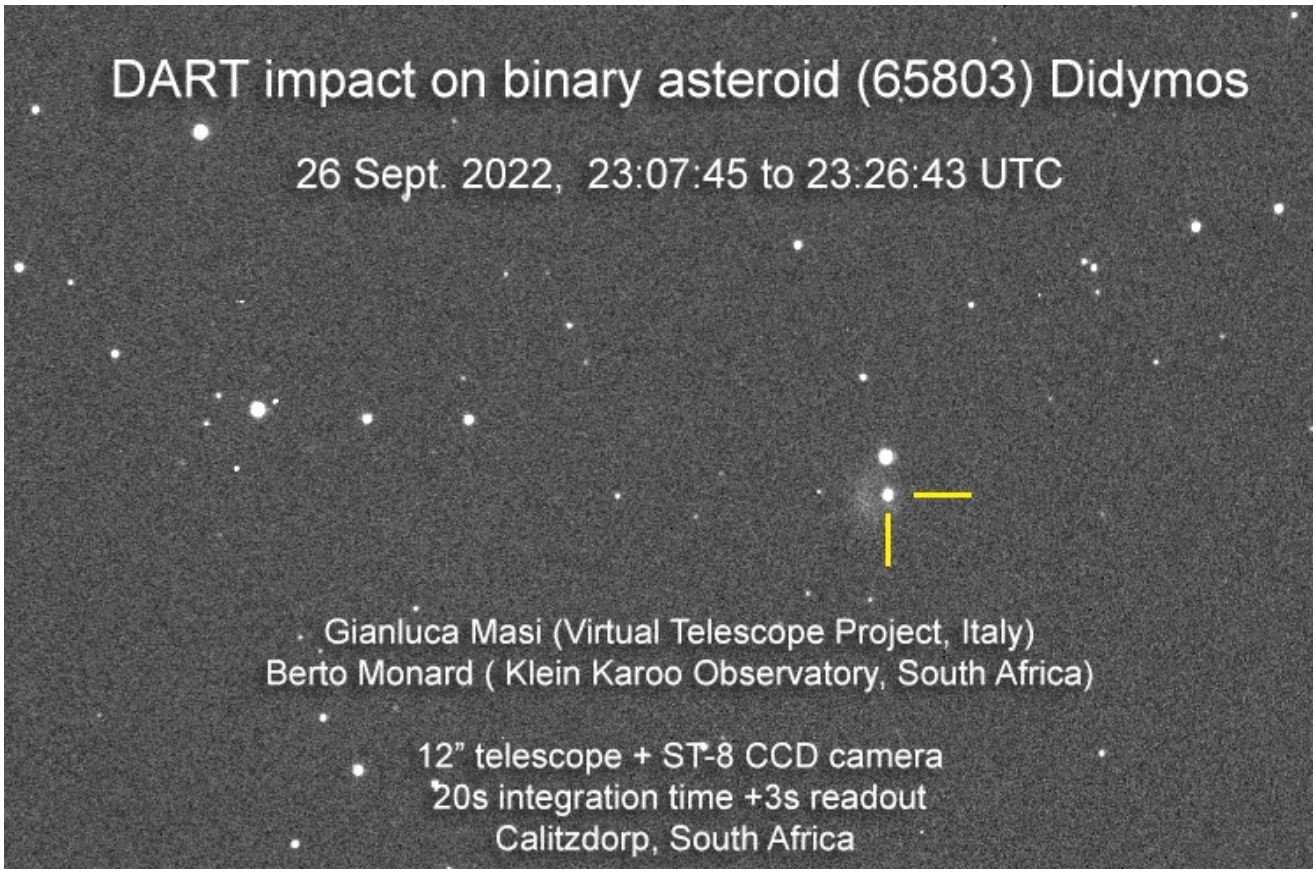


Fig 3. Dimorphos after impact showing the beginnings of a dust cloud around it.

We had been extremely lucky to have seen the main details in the transformation. Only 12 of the 140 images observed on the night were of good enough quality to show reasonable details, and 7 of them occurred at the time of the impact and the main phases of the after impact evolution. This was real good fortune during a dense cloud spell.

The broadcast was characterized by interesting story telling of an enthusiastic and excited Gianluca Masi and the reaction from those that followed the live broadcast was very positive.

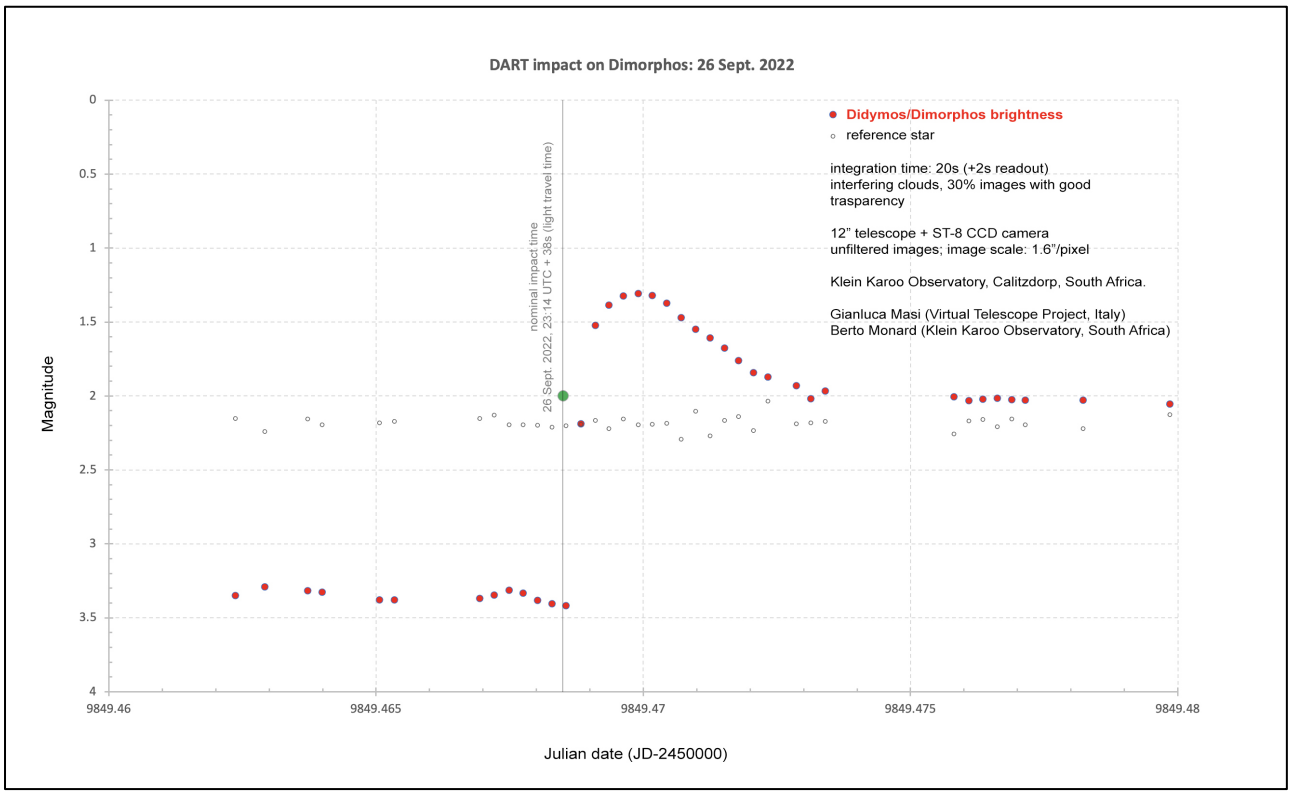


Fig 4. Photometry of the event.

In the meantime follow up observations with large telescopes did reveal that the impact has resulted in a shortening of the orbital period of the asteroid pair by 32 minutes. This is a significantly good result for any tactics of deviating orbits of dangerous nearby asteroids in the future.

For more see Gianluca's website of the virtual telescope on the DART mission:

https://www.virtualtelescope.eu/2022/09/27/double-asteroid-redirection-test-dart-impacted-on-didymos-dimorphos-and-it-was-a-huge-show/

ASSA Presidential Report for 2021 / 2022

Chris Stewart

Preamble:

First, I would like to thank Lerika for setting up this meeting, Bosman for chairing it, and all attendees for your participation.

Second, I wish to thank the Council members for their indefatigable commitment and support over the past year, especially considering the trying times under which we are

operating. There is a great deal more going on behind the scenes than meets the eye, much of it tedious. Your tireless efforts and considerable expertise are deeply a ppr eciated. Our success is a team effort.

“State of the Nation”

Whilst Covid restrictions and their aftermath continue to hamper our activities, particularly by precluding physical meetings such as star parties at unpredictable intervals, the frequency of these disruptions appears to be abating.

Unfortunately, some, such as the Pretoria Centre, still do not have access to their own facilities which are hosted by external parties, largely due to those party’s protocols surrounding Covid. It is hoped that this will be resolved in the near term. The Joburg Centre on the other hand is enjoying great support from their new landlords. Considering the difficulties they experienced under the previous landlords, this is a welcome relief.

The “new normal” of running our communal activities on-line is now well established and continues to work well. Some Centres have been experimenting with “hybrid” meetings, where there is a physical meeting at a Centre’s normal venue, and those unable or unwilling to gather physically can attend electronically.

That said, it is encouraging to note that physical gatherings, including star parties which require travel, are resuming.

Centres have continued to invite one another to join their meetings, and in some cases held joint meetings with other clubs and societies abroad. In addition, similar interactions with AfAS (the African Astronomy Society) and the Botswana group are ongoing.

I would particularly like to commend the Hermanus Centre for their frequent meetings on wide-ranging topics of interest, which are both well-run and often made available via recordings published on YouTube. This makes it possible for those unable to attend, or wishing to review the content, to retroactively benefit.

Equally the Pretoria Centre has hosted virtual “viewing evenings”, where many convivial free-wheeling conversations have taken place.

Membership

Note that in this summary, there is some overlap between Centre, Country and Honorary members. In terms of total membership, at over 600 we are doing OK.

Certainly, Covid has taken its toll, but I feel that after years of isolation people have cabin fever and are keen to get out again. Open days, star parties, enquiries from the public & response to the James Web Space Telescope indicate an untapped pool of interest. The time is now for a membership drive

A Centre that I am concerned about is Bloemfontein. I know they are very active, and are blessed with facilities, but from an ASSA perspective they have dropped off the map. It was my intention to visit, but unfortunately my opportunities were thwarted by lockdowns. I believe we need to make an effort draw them back into the fold.

Cape	83
Durban	138
Garden Route	42
Hermanus	56
Johannesburg	62
Pretoria	47
Bloemfontein	**?**

100	*Country Members*
13	*Honorary Members*
541	*Centre members*

Review of activities

I will now present brief summaries of the reports received to date, which will be made available on the website.

Communications

Without proper communications, both internal and outwards, the Society cannot function properly. The Internal communications through the mail groups are working well, being widely used and keeping members up-to-date.
ASSA liaison with the media continues as the occasion arises, though nothing as exciting as last year's topics has hit the headlines.

The "Ask an Astronomer" feature on the website has produced 117 questions since the last AGM. Of these, career guidance queries continue to predominate and those were as usual mostly passed on to the SAAO. Other popular queries include instrumentation setup and mirror re-aluminising. Questions on specialist topics are passed on to relevant experts; three such were forwarded to Tim Cooper and Prof Peter Dunsby at UCT. Unfortunately, there is also the inevitable spam component to discard.

Thanks to John Gill for keeping the website in shape, and Christian Hettlage for his liaison with SAAO IT, who kindly host our website. We particularly appreciate SAAO's continued support.

Citizen Science

No report is available for this, the section remaining dormant. Those with an interest in this topic are invited to step forward.

Comet and meteor

My thanks to Tim Cooper for resurrecting this section, and with it the excellent new section newsletter. I am sure you have all be enthralled with Tim's account of sleuthing down meteor fragments.

Imagers and those who enjoy observing should keep an eye on the newsletter for potential targets. Those who would like to participate actively, may wish to ask Tim about how to get involved in the sky surveillance camera network.

Cosmology

The cosmology section is a platform for ASSA members to highlight relevant research that they encounter. Although this section largely deals with the arcane, for those with an interest it has been a bountiful year.

The highlight was the astonishing early images that have been published by the Webb telescope and the Space Telescope Science team. The CHIME array continues to discover FRB's (fast radio bursts), with discovery of their 21st repeater recently being announced. Although it's an active area of research, the physics that generates these pulses is still poorly understood. Efforts are underway to detect neutron star collisions optically, whilst long period variability of cataclysmic variables may be caused by planets upsetting the gravitational field between the companions.

I have in this group periodically encountered erudite discussions on esoteric subjects so way above my pay grade, they might as well be in outer space. As I suppose they are. It is quite humbling. But what bigger questions can humans explore than the very origin of the universe itself, and thus of we humans too.
Our thanks to Bruce supported by Maciej for keeping this going.

Observing section

This section's goal is to increase enthusiasm for people to go out and observe. It's publication "Southern Skies Quarterly" offers an opportunity for members of ASSA, and the general public, to share what they have observed/imaged. Questions are answered, astronomical equipment is reviewed, and upcoming ASSA events mentioned.

The four editions to date have been well received. 107 observations from across the country were chronicled, covering a wide range of targets. Queries fielded by the public have been addressed, ranging from the identity of a mysterious bright light (Jupiter) to the spectacle of astronautical debris re-entering the atmosphere. Comets, sunspot activity and eclipses were tackled, as was the ongoing scientific research into Clyde's Spot. A diverse range of equipment was reviewed.

All in all, the amount of engagement over the year highlights the relevance of the new section to our community. Thanks to Angus, and well done to all participants.

Double & Variable stars

This is an area where amateurs can and do make a real contribution to science. Prominent active members include Berto Monard, Tim Cooper and Dave Blane, whose findings have been published in scholarly journals. In the year under review, Berto's observations submitted to the AAVSO alone passed the cumulative threshold of 2.8 million, and he discovered yet another supernova. The latter is impressive considering the growing number of automated sky survey observatories
Photometric studies of cataclysmic variables and eclipsing binaries are ongoing, whilst the Director continues mentoring beginners for the AAVSO. Hats off to you all.

Historical

The concerted effort to update the website is ongoing. Research was undertaken for the centenary of ASSA. An overhaul of the Digital Archive is underway, with substantial space on Google Drive already procured. Exactly how best to manage the transfer and curation of the vast quantities of information is currently under consideration. Relevant scholarly articles on hypotheses and instrumentation were published in MNASSA by F Thackeray and IS Glass respectively, sadly accompanied by an obituary of astronomer Tom Foley.

Our thanks to Chris de Coning who reminded us all last year about the ASSA turning 100 on 1 July. In that respect we've had a busy year. Thank you, Ian and Sally, for your efforts regarding Centenary celebrations on 1 July. Meanwhile Daniel and Christian have been putting in long hours to plan and organise the upcoming Symposium in October which will be the final highlight of the centenary celebrations. We're all looking forward to this event.
Great job everybody

Imaging / Astrophotography

The Flickr collection continues to showcase the talent of our astrophotographers and is well worth visiting to see what's new. Humans are very much visual creatures, and images are what grab the public's attention. Happily, some find themselves drawn to astronomy as a result.

Ongoing collaboration between the Astrophotography Section and all ASSA publications (i.e. the Sky Guide, MNASSA and Southern Skies) is very successful. The image contributions by astrophotographers of Comet C/2021 A1 (Leonard) in the April 2022 edition of MNASSA deserves special mention. Members have also received international recognition for their contributions.

Astrophotography competitions (such as that celebrating the Conjunction of Mars, Venus and the crescent Moon) have proved popular. Notably, Janco Moolman achieved a category win in the SAAO and SciFest Africa - SAAO 200 Astrophotography competition, and was also awarded the 3rd Prize in the nPAE Southern Hemisphere 2021 competition.
Our thanks to Martin for running this dynamic section. We look forward to exciting new targets of opportunity, and perhaps some more fiercely contested competitions.

Instrumentation

This Section directly supports the needs of both ASSA members and the general public regarding selection, purchase, construction, maintenance and use of instrumentation.

This is mostly done via the Amateur Telescope Making (ATM) class, the ever-growing Telescope Making SA Facebook page, e-mail correspondence, telephonic discussion, and WhatsApp/SMS. Thankfully the ATM class has resumed physical meetings after being on hold due to lockdown, though attendance has diminished somewhat. Via FaceBook there is a large international component that produces an energetic flow of ideas, information, technical assistance and encouragement.

Work continues with several instruments in progress, notably an 8" binocular instrument. Etsuo Takayanagi completed his skeletal Cassegrain following his return to Japan. Recently finished is a pseudo Dobsonian, where the mount doubles as a case to enclose the optical tube assembly and accessories for storage and transport. It becomes an interesting item of furniture when not in use. Twin heavy-duty binocular stands with unusually large height adjustability were completed, each adapted to different tripods. Novel components continue to be produced, with 3D printed parts now the norm.

Approximately 35 eyepieces were constructed from salvaged optics and distributed pro bono to worthy candidates. An 8" Skywatcher telescope was acquired, refurbished, and donated to the Girl Guides head office, where it is being used to promote youthful interest in astronomy.

Photometry & Spectroscopy

Spectroscopy is a fascinating area of astronomy, enabling us to determine what physical processes are in play in distant stars and nebulae. With photometry being mostly practiced in variable star observation, the emphasis of this section continues to be on promoting spectroscopy and supplying spectra to global research programs. Practitioners submit spectra directly to research programs per demand.

Regarding photometry, for his variable star work Dave Blane utilises an ordinary DSLR to obtain quality photometric observations of value to science. This is something that can easily be emulated by other interested individuals. Dave will happily mentor you.

Our thanks to Percy for starting and running the Section to date. Due to other commitments Percy has now stepped down as Section Director. We thank Dave Blane who undertook to run the section on an interim basis. It would be appreciated if someone with an interest in this topic set would step forward to take over the reins. You do not need to be an expert, just enthusiastic, and you will get guidance.

Dark Sky

This section was dormant, but is now thankfully restarted under the guidance of Daniel. Preserving our night skies is not trivial task. The path is long, there are many obstacles, and we need to educate a lot of people. However, progress is being made.

Some discussions between interested parties have been held, research into the process of instituting suitable bylaws that could further the aims is ongoing, and external parties with whom we can collaborate to achieve shared objectives are being identified.

Whilst it appears that the fragmented local authorities will probably have to be tackled one by one, at least in order to have some test case successes as prototypes that can be pointed to, there is some small hope that in time higher-level influences could be brought to bear. Meanwhile a strategy has been agreed among a group of member volunteers and a key focus is to work closely with the Government on their strategy for promoting Astro Tourism - which implies dark skies.
Anyone with an interest in this topic is strongly encouraged to engage with this section. My thanks to Daniel for stepping up as Section Director.

Scholarships

Due to poor performance of our invested funds during 2020, no scholarships were offered in 2021. However, it was possible to resume in 2022 and eleven eligible applications for scholarships were received. Most included excellent academic results, which is impressive considering the challenges faced by these students during the prior two "COVID years". None of the applicants were previous holders of either scholarship.

The scholarships were awarded to Physics / Astrophysics students currently in their third year of studies at the University of Cape Town. The ASSA Scholarship was awarded to Adnaan Nauthoo (a Mauritian national), whilst the Cooke Scholarship was awarded to Gary Louw.

Congratulations to Claire and the team for your professional process that has ensured identification and selection of worthy candidates for the ASSA and Cook bursaries.

Publications

This could properly be considered part of Communications, but our publications are important enough to be considered alone.

Our Editorial Board continues to produce top quality publications. These publications continue to do us proud, but they take a lot of work. It should be noted that the *Sky Guide* and *MNASSA* generate royalties, which are critical to fund ASSA's national operations. These royalties replace the former capitation tax on the Centres, relieving them of that financial burden. Therefore please promote the publications widely at every opportunity.

The long-running bimonthly peer-reviewed journal *MNASSA* is always a delight, peppered with diverse articles on interesting topics. A highlight of the year was the bumper edition, celebrating the Society's 100 years of existence.

Even those with dedicated astronomy software regularly refer to the spectacular annual *Sky Guide*. Next year there will be a refresh in the look and feel, which we look forward to.

Our observing-related sections too have produced excellent bulletins on noteworthy topics. They simply get better and better. It is clear from feedback and interactions with interested parties that the newsletters have encouraged people to go out and see the sky.

A big thank you to the team.

Conclusion

Note that all reports received will be available for perusal on the ASSA website.
Despite the troubling times and the earlier restrictions on physical gatherings, members of the Society continue to actively pursue their interests. Centres have found ways to keep their members in touch, while Council remains engaged and functional.

Although load-shedding continues to plague us, the increase in public enquiries regarding sightings may actually signal that the consequent darker sky plus fewer distractions is actually raising public interest and activity in astronomy.
Our communications have continuously improved (but could always be better).
Scholarships funding has resumed, the team is fully committed with an excellent track record, and the bursary recipients have excelled.

Our changes with respect to Observing have borne fruit and we welcome the new Comets and Meteor section. However, we need someone to take over the Photometry and Spectroscopy section, and more involvement on Dark Sky. Meanwhile the Citizen Science section remains dormant
On balance, I think we are doing rather well, but naturally we aspire to do better.

General thanks

That said, there are additional glue functions which pervade every aspect of the Society's existence. They are not in the spotlight, but without them, we cannot function cohesively and effectively.

So of course my sincere thanks to everyone on Council, to our Section Directors, to our Centre committees as well as all those supporting them in the background. However, I would like to specifically single out a few for special mention:

- Eddie Neijeboer, our membership secretary. Having to deal with Country members irate at the Post Office's dismal non-performance is an onerous chore
- AJ Nel, our Treasurer, who not only keeps our finances on the straight and level, but also provides invaluable legal advice.
- Lerika Cross, our Secretary, who keeps us all in line, makes things happen, and brings her prodigious Project management expertise to bear. You will agree that her dedication is a little frightening for us lesser beings.
- Our past presidents for their wisdom and ongoing support of Council
- And outside of our organisation, the company **CTF** lead by Rudolf Strydom, who are our independent financial compilers. They have given invaluable financial and tax guidance to the Society over many years, as well as supporting our long-

running ScopeX events. CTFS will also assist us with our registration as a Public Benefit Organisation to help secure our future.

One cannot buy the level of dedication and expertise you all bring to the Society. And that is on top of having to earn a living in your day jobs. I am truly grateful to you all.

Awards

Here we come to the most gratifying of my duties. The Society has a number of formal mechanisms for recognising and celebrating exceptional achievements or contributions by its members. None of these lightly conferred – and each represents notable effort, accomplishment and service to the Society.

Directors' awards

Directors' Awards are our means to recognise hard work within - and excellent service to - our Sections.

Instrumentation Section

Willie Koorts for Telescope Making

Willie, an inventor and tinkerer of note himself, has for many years supported the community by aluminising large mirrors. This is a painstaking job, fraught with difficulties. Whilst we fully appreciate SAAO's indulgence in this regard, Willie is the one who with his expertise and dedication makes it happen. Without this, the scale of ATM in South Africa would be severely limited. In addition, Willie's ever-increasing plethora of marvellous well-edited YouTube videos on diverse topics of interest to afficionados of astronomical instrumentation are both enlightening and entertaining.
Well done, Willie!

President's award

The President's Award is a certificate awarded by Council – acting upon written motivation made by a Council Member or Appointee – to a member making exceptional contributions to furthering the aims of the Society.

Chris de Coning for Archival excellence

Section Directors do what they do from a sense of duty and a love for the topic. It is a way of contributing their expertise for the benefit of the Society and its members, not a vain attempt to seek glory. But the efforts of some unsung heroes need to be

recognised, especially when the person slaves away for years with little to no help. Chris continues to work tirelessly on the massive long-term project of locating, collating, archiving and promoting information regarding the history of the Society, its luminaries, and the progress of astronomy through its long history in this county. This singular collection, will doubtless be mined from time to time for scholarly work that could otherwise not be possible. Great job, Chris

Overbeek Medal

The purpose of the prestigious Overbeek Medal is to recognise long-term, high-quality observational programs, especially those having scientific merit. (It is named in honour of Danie Overbeek, the Guinness book of Records champion of visual variable star observations.) The medal is struck in Sterling Silver and engraved in Cape Town.

Not more than one medal can be awarded in any given year, and the requirements for consideration are stringent. This year, I am happy to announce Dave Blane as our worthy recipient.

Dave has long been involved in photometry and astrometry, with an emphasis on double stars, but also variables and novae. A particular interest is the search for unknown companions, which requires meticulous capturing of light curves over long periods of time.

Although he started doing photometry visually, mentored by the late great Danie Overbeek, he has for some time been using DSLRs, which enables 3 colour channels to be captured simultaneously.

Dave has been actively contributing his observations to the AAVSO for 47 years, being rather prominent among the southern hemisphere contingent. The value of his work is reflected in numerous papers of which he is author or co-author, apart from the articles he has contributed to MNASSA. Having himself originally been mentored by Danie Overbeek he is now also a mentor for newcomers in this area, for the AAVSO.

I believe his long-term commitment to and accomplishments within this field have done us proud, and that Danie would be happy.
Dave, well done. Your medal is currently wending its way up from the Cape

To the three distinguished gentlemen we are honouring today: Again, well done. Everything is prepared and as soon as circumstances allow, we will get your awards to you in a secure manner.

Council Office Bearers 2022 / 2023

This is like the ISS; it comprises diverse modules, from a variety of origins. Although there is overlap, each has distinct capabilities, functions and character. They come together in unity to create an entity greater than the sum of the parts. Some provide core functions that bind, others are more peripheral. They come and go according to changing needs and requirements, and each has its place. All are ultimately ephemeral, though some remain longer than others. And if it is not periodically boosted, it will rain down on our heads in flames.

I present this as a visual metaphor for our organisation.

It is important for the wellbeing of our society to have in council both long-termers to carry the institutional knowledge, and vigorous newcomers with new ideas for periodic refreshment. In this respect, our practises of making Centre Chairs automatic members of Council, plus alternating between professional and amateur Presidents (something very unusual in this world) ensures a broader perspective, improves cohesion, and presents opportunities to reinforce pro-am collaboration.

Accordingly, here is our Structure for the year ahead. New incumbents are highlighted. Council comprises the Roles noted within the dotted lines. In the red box is the Core council / aka Financial Subcommittee (FSC)

Core Council / FSC	
President	Dr Daniel Cunnama
VP (outgoing)	Chris Stewart
VP (incoming)	Dr Pierre de Villiers
Treasurer	AJ Nel
Membership Secretary	Eddie Nijeboer
Secretary	Lerika Cross
Member	Dr Ian Glass
Member	Case Rijsdijk

Per the Constitution and long tradition, the core Council members are appointed by Council itself. Whilst this is at their discretion, it is motivated by the best interests of the Society and informed by wider consultation. Every effort is taken to ensure competent and committed individuals are identified for the roles. At this point, I would like us all to welcome professional astronomer Dr Daniel Cunnama as our new President, and to thank Pierre for again stepping up. Council will continue to have my support as I descend to the role of “outgoing Vice President”

Centre Chairs & Representatives

Centre Chairs are elected per the custom of the Centres. They are automatically members of Council, to ensure proper representation of ASSA membership. In the event that a Centre Chair is unable to attend Council, be it temporary or for a longer term, a Committee member may be delegated as Centre Representative to fill the role.

Centre Chair / Representative	
Bloemfontein	*Thinus van der Merwe **
Cape	Christian Hettlage
Durban	Amith Rajpal
Garden Route	Case Rijsdijk
Johannesburg	Carmel Ives
Pretoria	Johan Smit
Hermanus	Derek Duckitt

Appointees

Council appoints people to manage various defined roles, which exist to support the Society's aims and purpose in general. Sections, which are in effect Special Interest Groups, exist to assist interested members in advancing their expertise in specific fields of astronomical endeavour. They naturally wax and wane according to general levels of interest and the availability of suitable Directors.

Support Functions	
Scholarships Convener	Dr Claire Flanagan
Web Manager	John Gill
SAAO Website Liaison	Dr Christian Hettlage
Archivist	Chris de Coning
Comms Coordinator	Dr Sally MacFarlane
Social Media Liaisons	Kos Coronaios
	Martin Heigan
	Sally MacFarlane
	Chris Stewart

Section (Special Interest Group) Directors	
Observing	Angus Burns
Double & Variable Stars	Dave Blane
Photometry & Spectroscopy	Dave Blane *(acting)*
Cosmology & Astrophysics	Bruce Dickson
SA Astronomy History	Chris de Coning
Astrophotography	Martin Heigan
Instrumentation, ATM	Chris Stewart
Dark Sky	Dr Daniel Cunnama
Comet, Asteroid & Meteor	Tim Cooper

I would again like to take the opportunity to give thanks to all these unsung heroes of the back room, without whose diligent support our aims would not be met and our publications could not retain their high standard.

May you all enjoy your terms of office.

Now it is time for me to step down as President, passing the baton to my successor Dr Daniel Cunnama. Again, I offer my sincere thanks to everyone for your commitment, and trust that Daniel will enjoy your ongoing support. Daniel, I wish you every success.

I will now switch to video to show that due to Pierre de Villiers, this passing of the baton is not just a metaphor. We will courier the baton in due course.

That concludes my part of the formalities today.

Publications committee	
President	Dr Daniel Cunnama
VP (outgoing)	Chris Stewart
Treasurer	Adv AJ Nel
Secretary	L Cross
Comms Coordinator	Dr Sally MacFarlane
MNASSA Editor	Case Rijsdijk
Sky Guide Editor	Auke Slotegraaf
Southern Skies Editor	Angus Burns
Publication Supporters / Volunteers	
MNASSA Asst Ed/Layout Ed	Dr Ian Glass
MNASSA Asst Layout Ed	Willie Koorts
Book Review Ed	Maciej Soltynski
Web Manager	John Gill
Web Master (SAAO Liaison)	Dr Christian Hettlage
Professional Astronomer	Em. Prof Brian Warner
Professional Astronomer	Dr Ian Glass
Professional Astronomer	Dr Vanessa McBride

Obituary: Maarten Schmidt (1929-2022)

Maarten Schmidt, one of the most famous astronomers of his generation, died in Fresno, California, USA, on 17 September 2022.

Schmidt was born on 28 December 1929 in Groningen, Netherlands, and educated there and in Leiden. He joined the faculty at the California Institute of Technology in 1959. Caltech then possessed the largest telescope in the world, the 200-inch at Mount Palomar.

His most celebrated discovery was of the huge redshift of the Quasi-Stellar Object (QSO) 3C273, so-named from the “3C” radio catalogue of the Cambridge (UK) radio observatory.

Though numerous cosmic radio sources had already been identified, some remained quite mysterious and seemed to be starlike. In 1962, Hazard and Bolton were able to pinpoint the exact position of 3C273 using (radio) occultations. They communicated their result to Schmidt who had obtained a spectrum of what appeared to be a relatively bright starlike object with an emergent jet. This turned out to be quite peculiar, showing emission lines that did not seem to be attributable to known elements. Schmidt realised that they were, in fact, normal features similar to those

seen in emission-line galaxies, but red-shifted to z=0.158, an unheard of amount at the time (See Schmidt, M., *Nature* **197**, 1040, 1963).

His interpretation of the high redshift as being cosmological was not accepted at first in some quarters but was eventually proved to be correct. (ISG)

*Figure: At the time of the official opening of SAAO in Autumn, 1973, an Astronomical Symposium was held on 12 March at Stellenbosch. In this picture (reproduced from MNASSA **46**, 6, 1987), are some of the eminent speakers on this occasion: (l-r) Donald Lynden Bell, Maarten Schmidt, F. Graham Smith, Ben Gascoigne, Sir Richard Woolley and Gustav Tamann. The late Donald Lynden-Bell in 1969 suggested that Quasars were powered by massive black holes.*

Obituary: John Drummond Laing (1931-2022)

Drummond Laing was one of the last survivors of the of the Royal Observatory, Cape of Good Hope, that became the SAAO in 1972.

He was born on 28 January 1931 in Galashiels, Scotland, and died on 14 September 2022 in Cape Town.

Drummond was educated at St Mary's in Melrose and at Merchiston School in Edinburgh. His compulsory national service was in the Royal

Artillery, from 1949 to 1950. For 6 months after being demobbed, he worked at the family-owned woollen mill, working his way up from the traditional entry job of sweeping the mill floor. He then spent two years at the Scottish Woollen Technical College learning the trade. He even wove the Drummond tartan cloth for his own kilt himself. Afterwards, he worked for a few years in various wool and textile mills.

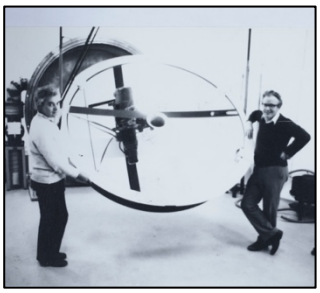
He was an only child and very close to his parents. He had a wonderful childhood in the countryside. His mother died in 1952 and he lived with his father until he too passed away in 1955. Having inherited a sense of adventure from his parents, he decided to pack up his life in Scotland at the age of 25 and head for Southern Africa, intending to visit and travel for a few months before going on to Australia to do the same. He travelled extensively - all the way to Kitwe on the copper belt in the then Northern Rhodesia. Afterwards he took a position at the SA Woolen Mills in Cape Town.

He decided to leave the field of woolens following the general collapse of the industry worldwide due to the increase in synthetics and competition to Scottish wool from cheaper Australian imports, not to mention the emergence of central heating in the colder countries!

At one of the many Scottish Country Dancing clubs in Cape Town, he met Gwen Caine, a commercial/graphic artist with red hair and Scottish ancestry. He soon shelved his plans to move on to Australia. They were engaged in three months and were married within a year.

A few years later saw an advertisement for a post at the Royal Observatory. He had long been interested in astronomy and had studied maths and physics for the equivalent of A levels in Scotland. He was offered an opportunity to study further by the director, Dr Richard Stoy, who was an Honorary Professor of Astronomy at UCT. He grabbed this opportunity with both hands and, studying part time, was awarded a BSc in 1969. This was a big achievement with two small children at home and regular night observing work. He was always grateful to Dr Stoy, who gave him this opportunity and encouraged and supported him all the way.

Drummond was deeply interested in the history of the Royal Observatory and was responsible for the commemorative 150th anniversary pamphlet in 1970, keeping alive precious memories at a time when the institution was facing possible closure.
With the founding of the SA Astronomical Observatory in 1972 he worked mainly on photometric observations and was involved in about 35 publications. On the practical side, he made a major contribution to the aluminization of the telescope mirrors that was necessary every few years. In particular, he was largely responsible for solving a serious problem with the quality of coating being obtained.


Figures: 1. The aluminizing team outside the 1.0m telescope building. (l-r) Roger Etherton, Eric Banner, Drummond Laing, Ron Phillips, Joe Churms. 2. Eric Banner and Drummond Laing after the first successful aluminization of the 1.9m mirror. 3. At the 1m aluminizing tank.

Drummond retired in January 1991. Though he had loved his work at the Royal Observatory and SAAO, he also enjoyed his many years of retirement and being a very active grandfather. His hobbies included gardening, reading, photography, hiking, bird watching, crossword puzzles and so many other diverse interests and he had an amazing general knowledge. In his late eighties and up to the last months of his life he was an invaluable eagle-eyed proof reader for his son in law Andrew. He leaves behind two daughters, Jane, and Annabelle, and two grandsons, George and Samuel. All of them have the same middle name Drummond. In this way he made sure that the name Drummond would continue to future generations though his daughters! (ISG)

Colloquia

Colloquia and Seminars (now Webinars) form an important part of a research facility, often as a sort of pre-publication discussion or a discussion of an individual's current research, and as such it is virtually impossible to "publish" this material. However by recording the topics discussed in the form below does indicate to those, who are unable to attend, what current trends are and who has visited to do research: it keeps everyone 'in the loop' so to speak

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With the advent of CV19, these Colloquia and Seminars are being presented to wider audiences via Zoom and other virtual platforms. The editor has started by identifying what would originally been "local" Colloquia and Seminars; not easy as there are now Webinars on interesting topics from around the globe! In time we will either return to the traditional Colloquia and Seminars or many will become Hybrid session

Title: Star formation history of mass-selected galaxies at 0.1 < z < 1.5
Speaker: Emmanuel Ocran **(**Korea Astronomy and Space Science Institute**)**
Date: 7 September
Venue: UWC Room 135 - Hybrid
Time: 11h00

Abstract: I will present an independent stacking analysis of radio data from the Giant Metrewave Radio Telescope (GMRT) surveys of the ELAIS N1 region. We stack by mass and redshift bins respectively, for sources drawn from the rich LOFAR Two-metre Sky Survey (LoTSS) deep field multiwavelength (Shimwell et al 2017) ancillary data available in the field. We calibrate 610 MHz rest-frame luminosity as a SFR indicator following Garn et al. 2009, allowing us to turn radio luminosity estimates into SFR function estimates. We provide a coherent, uniform measurement of the evolution of the logarithmic star formation rate (SFR)– stellar mass M_star relation, called the main sequence of star-forming galaxies (MS), for star forming and all galaxies out to z ~1.5. We measure the MS using median stacks of 610 MHz radio continuum images to derive average SFRs and sSFRs for ~ 77,047 mass-selected galaxies at z > 0.1 in the ELAIS N1 field. We compare our results to other work in the literature and find synergies with recent findings on specific star formation rates studied at other wavelengths

Title: The physics of turbulent, multiphase gas
Speaker: Dr Max Gronke
Date: 22 September
Venue: SAAO – Auditorium/Zoom
Time: 11h00

Abstract: Many astrophysical systems such as the interstellar, circumgalactic or intracluster media are multiphase, that is, a much colder gas phase is embedded in a larger, volume filling hot phase. This structure is very hard to model and in fact leads to usually unconverged large scale (cosmological) simulations. In my talk, I want to dive into the physics of multiphase gas, and focus on questions such as what is setting the mass transfer rate between the phases, and what sets the structure and kinematics of the cold gas -- which is usually observed. I will show results from high-resolution hydrodynamical simulations and analytic models which are partially inspired from the completely different field of turbulent combustion.

Title: Understanding the variability and Spectral Energy Distribution of blazars
Speaker: Sunil Chandra, SAAO
Date: 30 September
Venue: UWC Room 135 - Hybrid
Time: 11h00

Abstract: The blazars are a subclass of Active Galactic Nuclei (AGN) seen almost along the relativistic jet, emanated from very close to the host accreting super massive black hole. Because of these having jets at close angles to our line of sight, blazars make a unique sample for studying the extreme particle energisation, nature of magnetic field and many other physical properties of the jet close to the central engine. The blazars are well known to show flux and spectral variations on a diverse time scale. In this seminar, I plan to brief some of our interesting results on constraining the emission region, particle acceleration and magnetic field responsible behind the outbursts

Title: "3D cosmology from massive optical redshift surveys"
of Astrophysics (LASTRO) & Director of the EPFL Space Centre (eSpace)
Date: 14 October
Venue: Dept of Chemistry, Minor Lecture Room, Rhodes University
Time: 11h00

Abstract: "In the last 40 years, astronomers have charted the 3D position of galaxies in the Universe. With the recent Sloan Digital Sky Survey (SDSS) and the recent Dark Energy Spectroscopic Instrument (DESI) survey, a much clearer picture is arising of the matter distribution across the Universe. These measurements confirm the Lambda-CDM cosmology model even though some tension in the model still exists, and need to be understood.

I will give a summary of the recent progress and understanding, as well as give an outlook on future projects. In particular, I will present the required instrumental developments needed particularly in robotics to make the next-generation spectroscopic surveys possible."

Title: Studying the emission mechanism and central engine of Gamma-ray bursts
Speaker: Dr Vidushi Sharma NASA GSFC/UMBC
Date: 17 October
Venue: SAAO Boardroon/Zoom
Time: 11h00

Abstract: The spectroscopic study of the prompt emission of GRBs alone is inadequate to discriminate between the models. Thus, one more constraining observable, polarisation, is of great importance for unravelling the emission mechanism and is an emerging hot topic. Cadmium zinc telluride Imager (CZTI) onboard AstroSat is actively measuring polarisation in hard X-rays. In this talk, the novel technique of spectro-polarimetry will be presented for understanding the science of GRBs. The joint observations from AstroSat, Fermi and Swift have been utilized for understanding the

observed emission mechanism in GRBs. Time-resolved spectro-polarimetric studies of a few bright GRBs reveal variation in the polarisation with a concurrent change in spectrum and will be detailed. The composite modelling of the spectrum, polarisation and afterglow observations of GRBs have been utilised for understanding the nature of the outflow. In other work, we have studied the prompt emission of a sample of short GRBs to infer the viewing geometry and the jet opening angles using the prompt phase. Lastly, 8 long GRBs with black hole as their central engine are identified in 11 years of Fermi data.

Interacting dark-fluid models: theory and constraints
Speaker: Prof. Amare Abebe from North West University.
Date: 14 October
Venue: ARC Seminar UKZM - Zoom
Time: 15h00

Abstract: In this talk, some cosmological models with interacting dark matter and dark energy will be presented. We will show how such interacting dark-fluid models can potentially alleviate the so-called coincidence and Hubble-tension problems. And finally, we will demonstrate our attempts to constrain such models using observational and simulated data.

Title: Discovering radio transients using the power of humans and machines
Speaker: Alexander Andersson
Date: 21 October
Venue: SAAO Auditorium
Time: 11h00

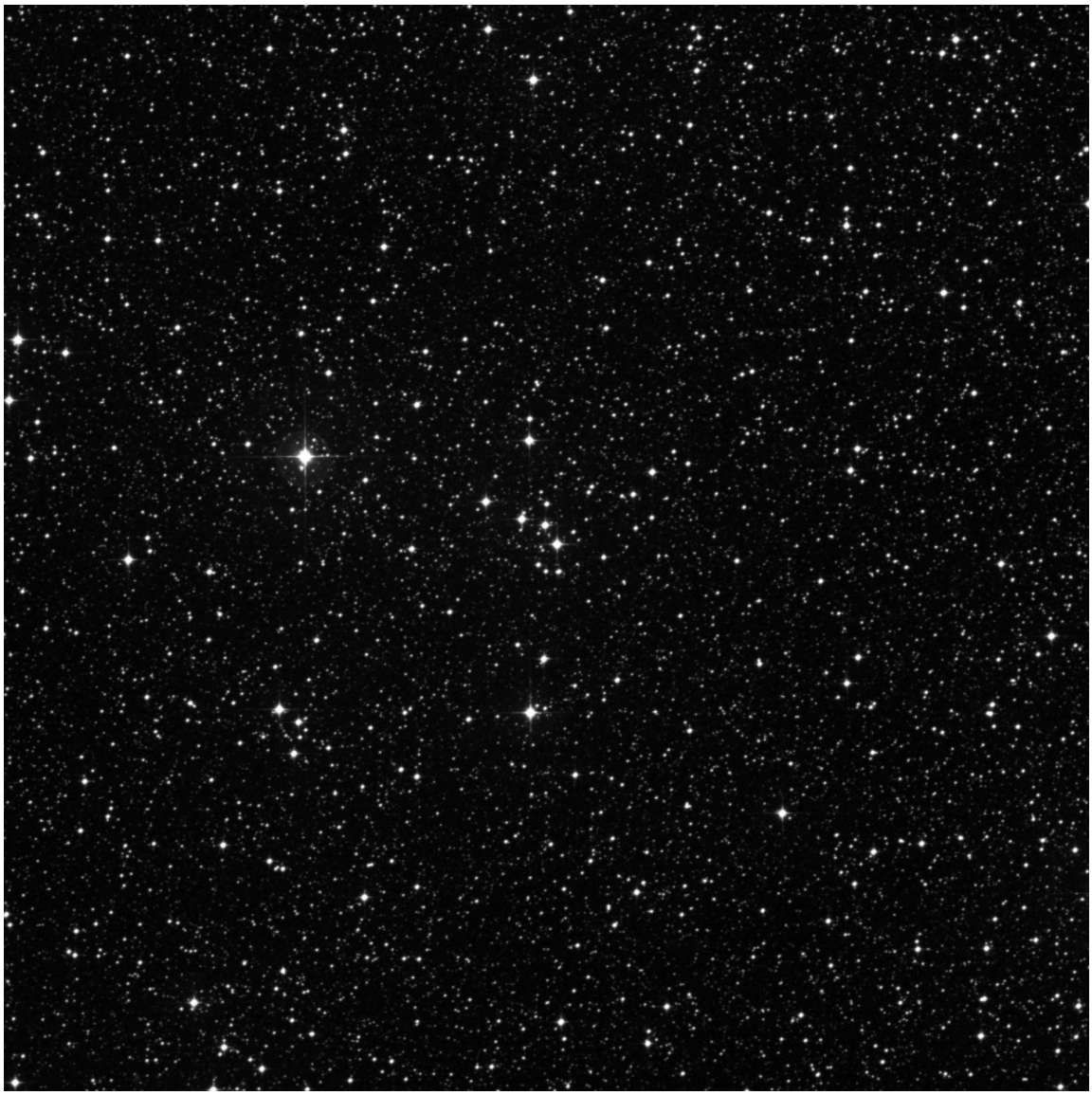
Abstract: The study of radio transients probes an immense range of astrophysical regimes - from flare stars to FRBs - and with the advent of current interferometers we can sample wide swathes of the radio sky with unprecedented sensitivity and cadence. In this talk I will discuss recent, serendipitous discoveries being made with the MeerKAT radio telescope and how we can make the best of new facilities coming online. This includes how citizen scientists have scoured our data and uncovered 100s of new variable sources - this is the first ever crowd sourcing project dedicated to radio transients in this manner. I will also discuss novel machine learning techniques being developed to speed up the search for interesting and anomalous sources, methods that will prove invaluable as we look towards observatories such as Rubin and the SKA.

Streicher Asterisms 91-95

Magda Streicher

STREICHER 91 – DSH J1840.1-4412
Corona Australis

A small number of individual stars, less concentrated and roughly in a triangular shape. Fainter stars spray out towards the western star field, one prominent on the southern edge. The bright magnitude 7.3 field star HD 172144 is situated just east of this quite outstanding group.

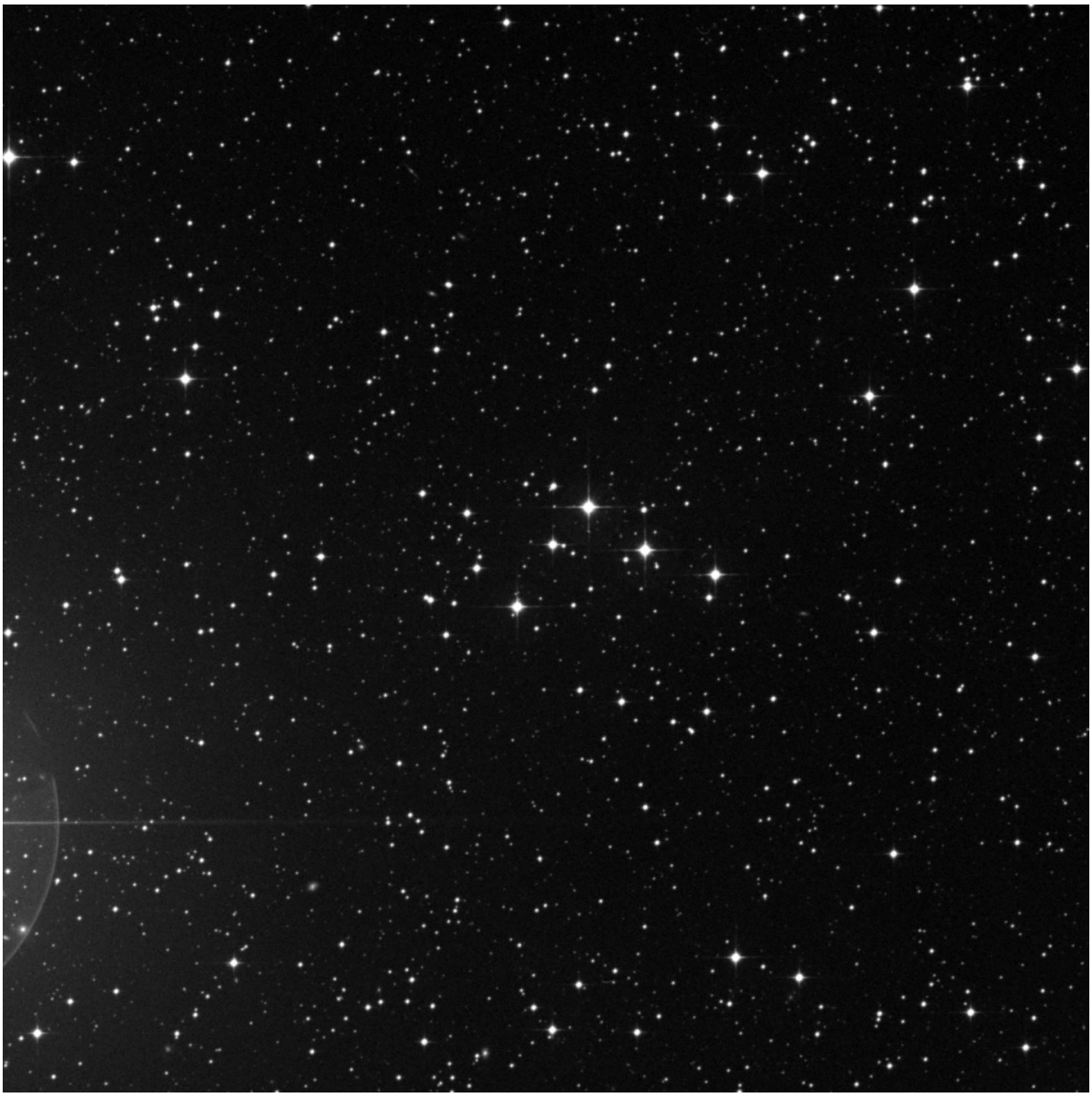


OBJECT	TYPE	RA	DEC	MAG	SIZE
STREICHER 91 DSH J1840.1-4412	Asterism	18h40m.01	-44°12’.33	9.2	9’

STREICHER 92 – J0636.0-4304
Columba

The prominent five magnitude 9 stars give the impression of an upside-down V-shape, nicely outstanding against a fainter background star field. It is situated only 20’ north-west of magnitude 3 nu Puppis, just visible on the lower left edge of this Deep Sky Survey photograph below.

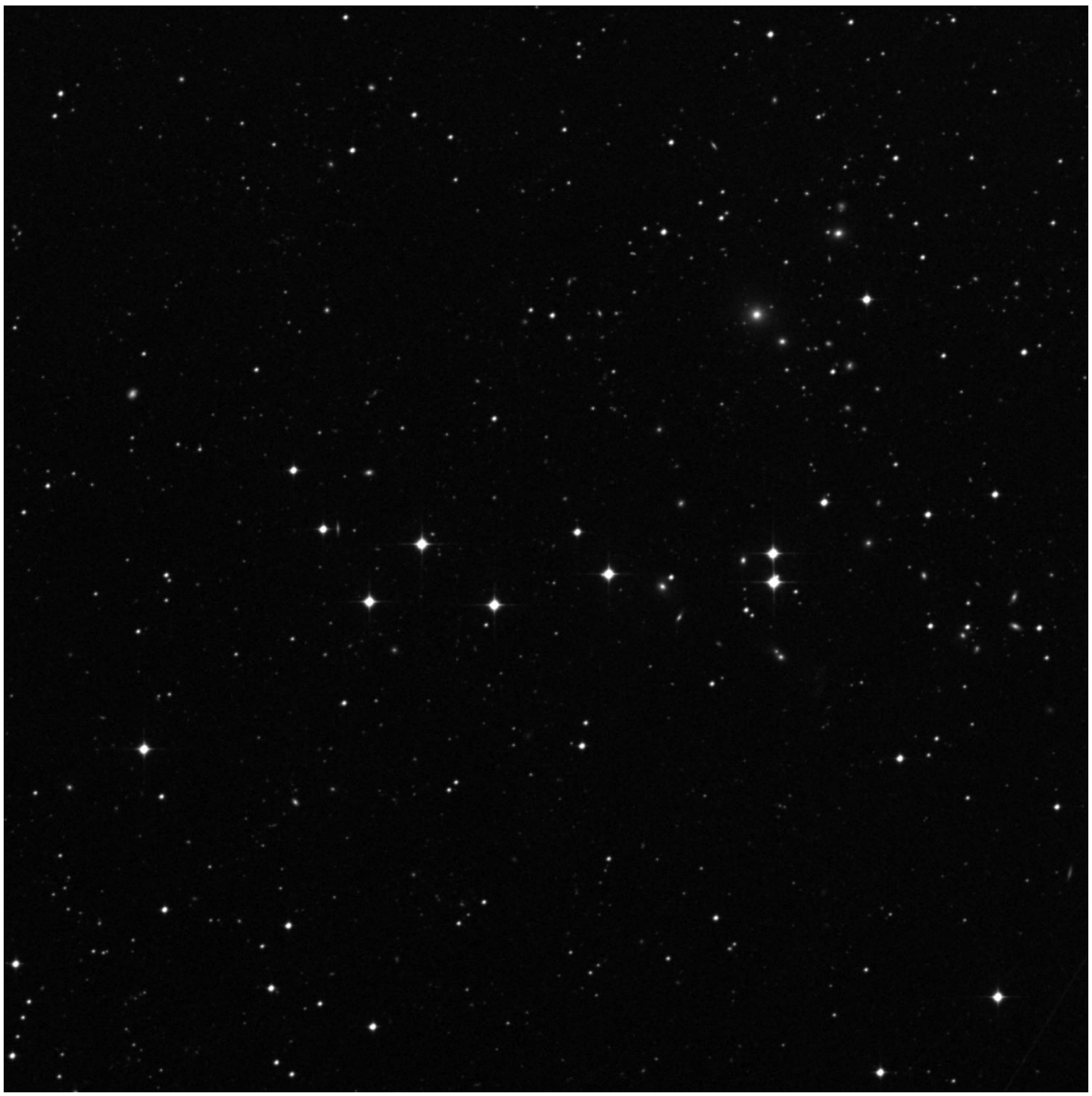
OBJECT	TYPE	RA	DEC	MAG	SIZE
STREICHER 92 DSH J0636.0-4304	Asterism	06h36m.00	-43°04’.24	9	6’



STREICHER 93 – J0142.5-4212
Phoenix

This very elongated grouping in an east-west direction, consists of a few 10 magnitude stars, with a nicely-spaced double star towards the western end. It resembles perhaps a lizard figure in a way. The southern star of the double is listed as HD 10561, with fainter stars extended further towards the west. The galaxy pair NGC 641 and NGC 644 is situated outside the field of view 45' towards the south-west.

OBJECT	TYPE	RA	DEC	MAG	SIZE
STREICHER 93 DSH J0142.5-4212	Asterism	01h42m.30	-42°12'.17	10	13'

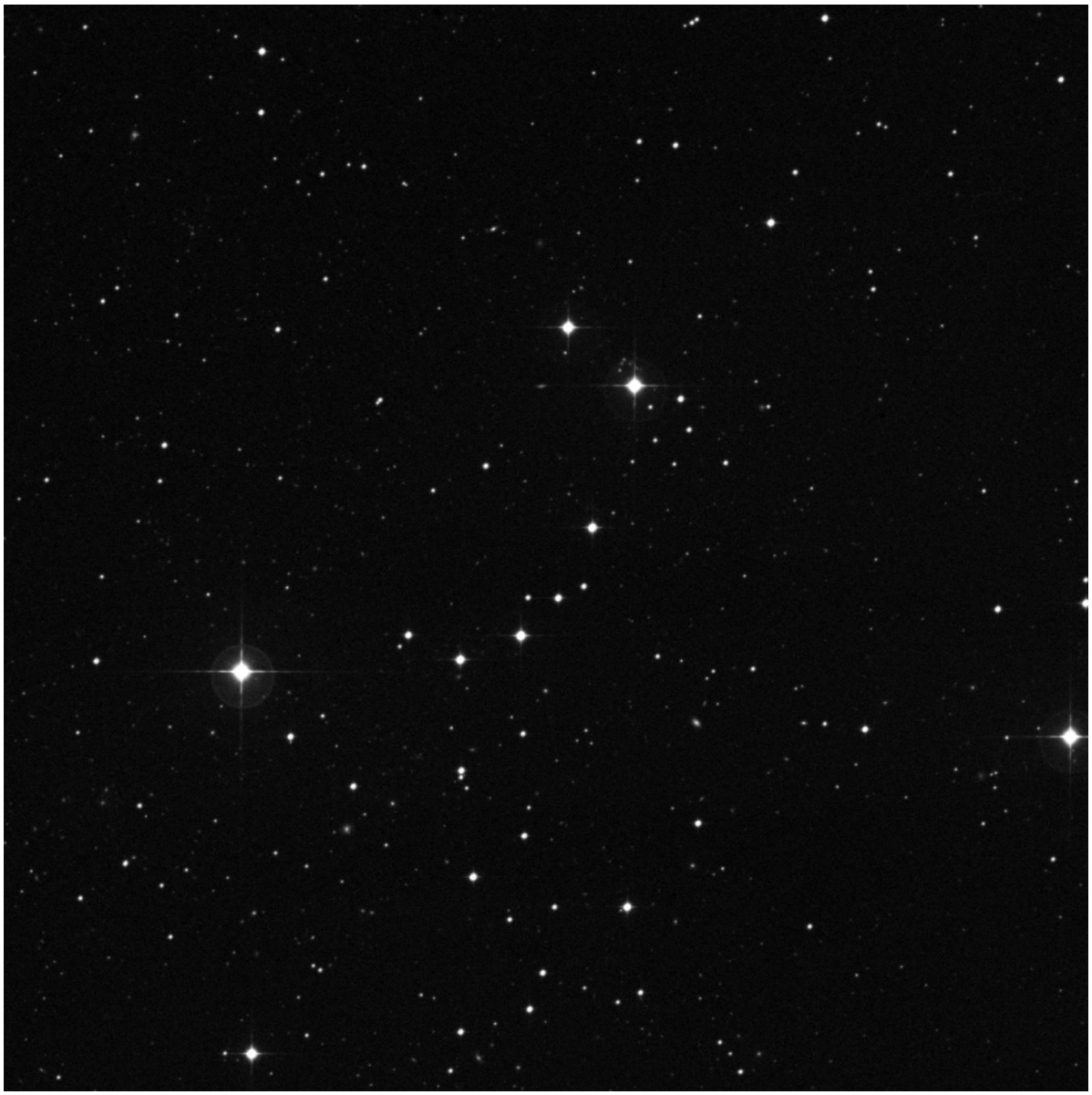


Picture Credit: http://archive.stsci.edu/cgi-bin/dss

STREICHER 94 – J0156.4-4307
Phoenix

A relatively outstanding half-moon star grouping with its open side towards the east. The brightest magnitude 7.8 star catalogued as HD 12003 flanks the lower eastern end. The magnitude 5 phi Phoenicis is only 40’ towards the north-west.

OBJECT	TYPE	RA	DEC	MAG	SIZE
STREICHER 94 DSH J0156.4-4307	Asterism	01h56m.24	-43°07’.17	9.5	9’



Picture Credit: http://archive.stsci.edu/cgi-bin/dss

STREICHER 95 – J0850.3-3638
Pyxis

A very tight and short faint string of magnitude 10.5 stars curving in a north-west to south direction, quite outstanding and striking. Three obvious brighter stars frame the string towards the west. Stars in strings are scattered all over the starry skies and more than rewarding to a keen eye.

OBJECT	TYPE	RA	DEC	MAG	SIZE
STREICHER 95 DSH J0850.3-3638	Asterism	08h50m.18	-36°38'.12	10.5	3'

Picture Credit: http://archive.stsci.edu/cgi-bin/dss

The **Astronomical Society of Southern Africa** (ASSA) was formed in 1922 by the amalgamation of the Cape Astronomical Association (founded 1912) and the Johannesburg Astronomical Association (founded 1918). It is a body consisting of both amateur and professional astronomers.
Publications: The Society publishes its electronic journal, the *Monthly Notes of the Astronomical Society of Southern Africa (MNASSA)* bi-monthly, the annual *Sky Guide Africa South* and *Nightfall*.
Membership: Membership of the Society is open to all. Potential members should consult the Society's web page : http://assa.saao.ac.za for details. Joining is possible via one of the local Centres or as a Country Member.
Local Centres: Local Centres of the Society exist at Bloemfontein, Cape Town, Durban, Hermanus, Johannesburg, Pretoria and the Garden Route Centre; membership of any of these Centres automatically confers membership of the Society.
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ISSN 0024-8266

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monthly notes of the astronomical society of southern africa

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