SALT

Newsletter

December 2024

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Editor: Anja C. Schröder

Cover image: SALT in evening light. -- *Credit*: SAAO

Letter from the Acting Head of Astro-Ops

Dear SALT Community,

As the year draws to a close, I find myself reflecting on a period filled with both challenges and achievements. I would like to extend my heartfelt gratitude to all members of the various SALT teams. Your dedication and hard work have been instrumental in our progress this year. I hope that as you head into the holiday season, you take the opportunity to rest and recharge—you've earned it.

This issue highlights key updates from recent activities:

- Malcolm provides an update on the Efficiency Project, showcasing how the guider pre-positioning and the magic pixel implementation have successfully reduced telescope overheads.
- We also share the latest developments regarding NIRWALS and exciting projects like the Laser Frequency Comb (LFC) and the slitmask IFU, among others.

Looking ahead, the Head of SALT Astronomy Operations position, along with a few SALT Astronomer positions, will soon be advertised on the AAS job board. Please keep an eye out for these announcements.

The Call for Proposals for the 2025-1 semester will already have been announced by the time you read this. For more information, please visit https://astronomers.salt.ac.za/proposals/ . The Phase 1 deadline is 31 January 2025.

This year also brought moments of loss. We mourn the passing of Surayda Moosa, a cherished member of the SALT team who will be remembered fondly and missed dearly.

Wishing you a restful end to the year and looking forward to the milestones we'll achieve together in 2025.

Until next time,
Danièl

SCIENCE HIGHLIGHT

Probing the Nature, Environment, and Evolution of Ultrastrong Mg II Absorption Systems

by Labanya Kumar Guha (IUCAA)

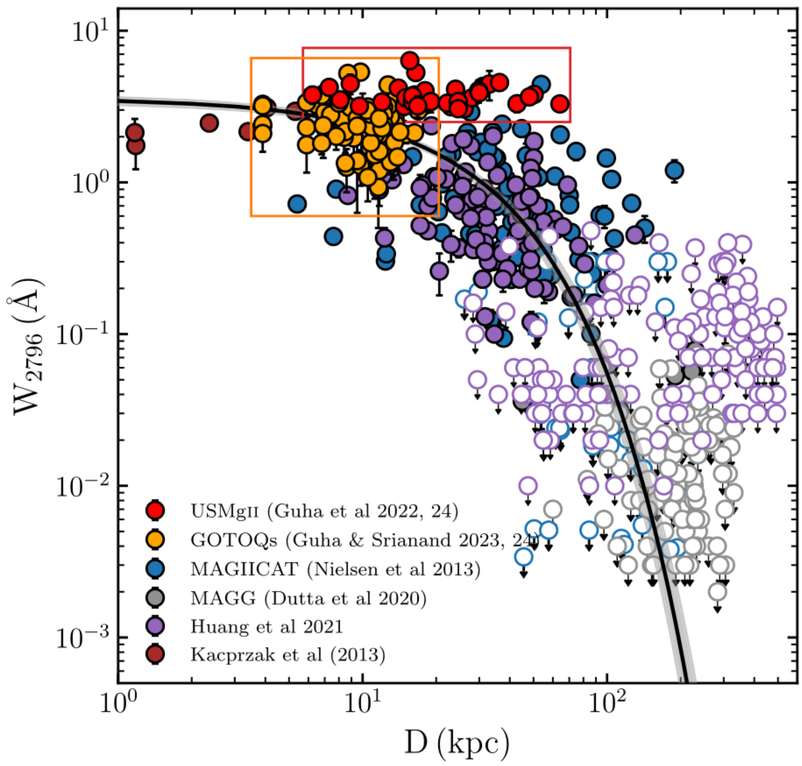
According to the modern theoretical paradigm, galaxies evolve by means of a slowly varying equilibrium between gas accretion, galactic-scale winds, and in-situ star-formation in the galactic discs. Galactic-scale outflows with velocities of 100--1000 km/s, probed by "down-the-barrel" low-ionisation (e.g., Na I , Mg II and Fe II) absorption lines, are ubiquitous in galaxies. While the presence of winds in down-the-barrel studies is well-established, their locations (important for deriving wind parameters such as the mass outflow rate) with respect to the stellar discs cannot be constrained. Quasar absorption line studies, on the other hand, have established the presence of a cool circumgalactic medium (CGM) around galaxies out to projected distances of a few 100 kpc. It is now well recognised that the kinematically complex, multi-phase CGM plays a crucial role in regulating gas flows in and out of galaxies. In CGM studies using background quasars, unlike the down-the-barrel experiments, the distance of the absorbing gas with respect to the host galaxy is well measured. Nevertheless, it is difficult to establish a direct link between host galaxy properties like star formation and absorbing gas, especially at large impact parameters. Probing star-forming galaxies using background quasar sight lines at very low impact parameters (e.g., within the regions influenced by winds over a characteristic time-scale of star formation) can provide vital clues on the role played by large-scale winds in shaping the physical conditions of the CGM. For example, an outflow moving with a speed of 200 km/s can influence a region out to ~20 kpc surrounding galaxies in about 100 Myr (i.e., comparable to the time-scale for UV continuum-based SFR).

In her PhD thesis, Labanya Guha from IUCAA under supervision of Raghunathan Srianand, studied the largest sample of quasar-galaxy pairs at very small impact parameters (D; within a few tens of kpc) to investigate the nature large scale gas flows operating at disc-halo interface of galaxies and its connection to the host galaxy properties. She used two distinct classes of Mg II absorption systems: (i) Ultra-Strong Mg II absorption systems (USMg II; defined as Mg II absorption systems having rest equivalent width, W 2796 ≥ 3Å) and (ii) Galaxies On Top Of Quasars (GOTOQs).

Host Galaxies of ultrastrong Mg II absorber at z ~ 0.6 (Guha et al.; 2022, 2024)
Guha and her colleagues report spectroscopic identification of the host galaxies of 38 USMg II systems at 0.4 ≤ z ≤ 0.8, thereby compiling the largest sample of USMg II absorbers with host galaxy identification. The USMg II host galaxies do not follow the canonical $W_{2796} - D$ anti-correlation and constitutes a distinct population in $W_{2796} - D$ space. Compared to the host galaxies of normal Mg II absorbers, USMg II host galaxies are brighter and more massive for a given impact parameter. USMg II host galaxies have slightly lower ongoing star-forming rates than the main sequence galaxies with the same stellar mass and redshift, indicating that these galaxies are transitioning from star-forming to quiescent galaxies. The

authors find that at least 29% of the USMg II host galaxies are isolated, and the large widths of the Mg II absorption in these cases may be the result of gas flows (infall/outflow) in isolated haloes of massive star-forming but not starbursting galaxies. The autors also discover that, in at least 21% of cases, more than one galaxy may be associted with the absorbing gas where the galaxy interactions may cause wide velocity spread.

Nature of the Galaxies On Top Of Quasars producing Mg II absorption (Guha and Srianand; 2023,2024)
Quasar-galaxy pairs at small separations are important probes of gas flows in the disc-halo interface in galaxies. The authors report the impact parameter measurements of 74 of these absorbers using multi-band images from the DESI Legacy Imaging Survey, more than doubling the number of known host galaxies with D ≤ 20 kpc. The authors find a significant anti-correlation between M_B and D, and M_B and W_{2796}, consistent with the brighter galaxies producing stronger Mg II absorption. Stacked images are used to detect average broadband emissions from galaxies in the full sample, resulting in the determination of various galaxy properties. On average, GOTOQs are found to be main-sequence galaxies. High spatial resolution imaging and velocity-resolved spectroscopic follow-up of these two samples will offer critical insights into gas flows at the disk-halo interface of star-forming regions in high-z galaxies and their role in galaxy evolution.



The impact parameter (D) versus the W_{2796} anti-correlation for the isolated galaxies. The red and orange points correspond to the USMg II and GOTOQs from their survey, respectively. The blue, violet, gray, and brown points are taken from the MAGIICAT survey (Nielsen et al.; 2013), Huang et al. (2021), MAGG survey (Dutta et al.; 2020), and Kacprzak et al. (2013), respectively. The solid black line corresponds to the best-fit log-linear model. The red and orange boxes encapsulate the region of interest, an important region that was not explored in the past.

Published as

- **Guha et al. (2022), MNRAS 513, 3836**
- **Guha and Srianand (2023), MNRAS 519, 3319**
- **Guha et al. (2024), MNRAS 527, 5075**
- **Guha and Srianand (2024), MNRAS 532, 3056**

NIRWALS science observations

The SALT team has recently reviewed the latest NIRWALS science reductions. While the instrument is technically ready for science observations, it is clear that further refinement and understanding of the data reductions are necessary. Consequently, the decision has been made to halt further NIRWALS science observations for the current semester.

For PIs with 2024-2 allocated NIRWALS time, the SALT team offered two options to accommodate ongoing projects:

1. **Proceeding with NIRWALS Observations**
   PIs could choose to proceed with data collection using NIRWALS. However, they were advised that immediate support for data reductions would not be available.
2. **Exploring Alternative Instruments**
   PIs could opt to use other SALT instruments, such as HRS or RSS, to pursue their scientific objectives. For projects where this approach was not feasible, PIs were encouraged to consult with their respective TACs to discuss alternative plans.

The response from the community reflected diverse preferences. A significant majority (63%) opted to continue using NIRWALS, while 37% decided to use other SALT instruments to achieve their science goals.

This approach ensures that ongoing research remains productive while the SALT team works to address the challenges associated with NIRWALS data reductions. We appreciate the understanding and collaboration of our users during this process.

Danièl Groenewald.--

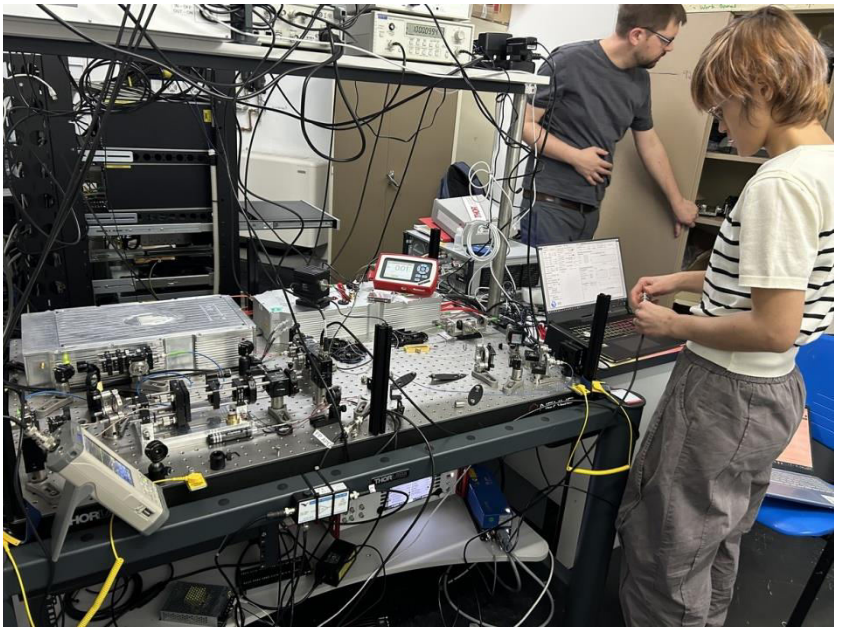
Slitmask SMI-200

The scientific verification of SMI-200 has been concluded. SMI-200 was found to be easily insertable at the focal plane without any issue. The compatibility of SMI-200 with the focal plane mechanism is found to be excellent. SMI-200 is parfocal at the SALT focal plane with the 1-arcsecond long slit but requires a relative offset of 450 µm at the detector. Due to the slit mask mechanism's non-repeatability, flat exposures are necessary with every science exposure. Arc exposures can be recorded separately during day time to reduce overhead. SMI-200 is found to have a median throughput of 19% compared to the 1-arcsecond long slit. This throughput value can be verified independently via flat and on-sky exposures. Target acquisition requires acquiring the object on the 1-arcsecond long slit and then swap in the SMI-200. MaNGA galaxy 8652-12703 has been observed with SMI-200 and the reduced data is compared to the MaNGA data analysis pipeline product. The emission line flux values are found to be within 3.5% while continuum flux is within 7% of the mean MaNGA measurements. Velocity and dispersion are found to be within 3% and 1.2%, respectively, of their maximum values derived by MaNGA.

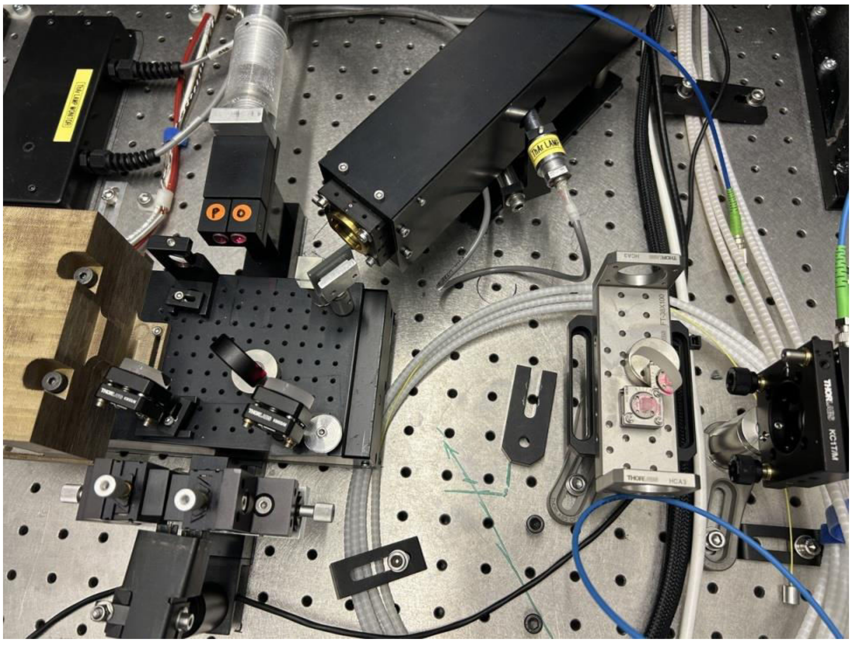
Antoine Mahoro.--

Laser Frequency Comb update

Heriot-Watt University (HWU) laser physicists Richard McCracken and Shan Cheng returned to SALT for another laser frequency comb (LFC) integration run from 26 November to 6 December. They were accompanied by Daniel Holdsworth, our UK-based high stability (HS) mode data reduction pipeline developer. Local support during the visit was provided by the Ops team, largely through Wimpie van der Westhuizen, Malcolm Scarrott and Lisa Crause. Nico van der Merwe and the SALT 3D printer deserve special mention as well for having produced some extremely useful parts during the ten days!



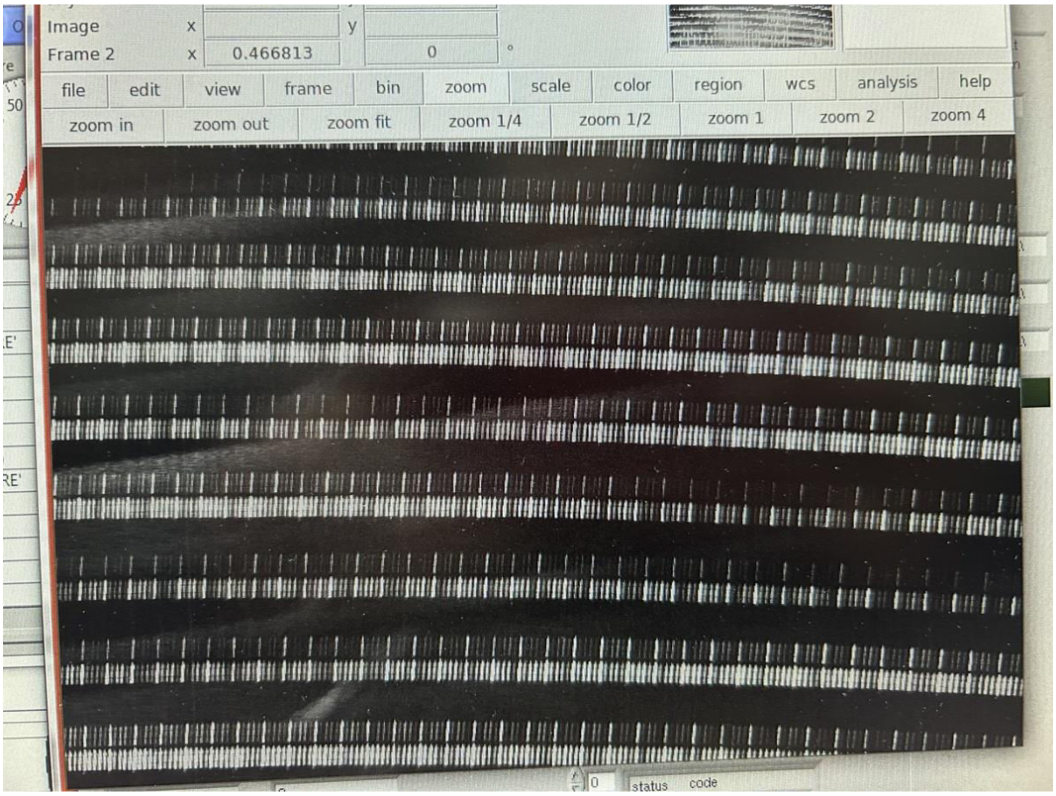
Richard and Shan in action.



HS bench optical feed for the comb light.

The trip was incredibly busy and productive, though not without a degree of frustration as the hardware is under no obligation to be entirely cooperative... The various new fibre combiners were successfully installed, as was the new curved Fabry-Pérot (FP) mirror. The FP cavity was aligned and a locking loop was implemented to stabilise the cavity. Another loop was set up to lock the Rubidium reference line (from a separate continuous wave laser) to the appropriate comb tooth, providing unambiguous identification of a specific comb frequency, from which all others can then be inferred. Then the optical feed on the HS bench in the inner HRS room was modified to allow the launch fibre to inject comb light into both HS mode fibres simultaneously. HRS frames were taken that show fully-locked comb light (with all four loops operating), along with the Rubidium marker superimposed on the required comb tooth, going down both fibres. The next step would have been to set up the spatial light modulator that will spectrally flatten the comb light across the 550—890 nm wavelength range of the HRS Red channel.

Unfortunately, this step was scuppered by strange behaviour of the FP cavity following the introduction of an additional piezo actuator that was intended to improve the stability of the FP system. A great deal of time was spent trying to sort out this unexpected quirk that resulted in alternating bright and faint comb teeth in parts of the comb spectrum. The flattening module will now need to be worked on back in Edinburgh so the team will return sometime in the early part of 2025 to integrate this final element. Though not in its final form, the system can be used for testing and we will be able to proceed with work on the comb-specific parts of the data reduction pipeline as well.



Alternating comb tooth intensities.

Lisa Crause.--

Spectro-polarimetric calibration

Danièl Groenewald and Ken Nordsieck have spent the last few years improving the RSS spectropolarimetry calibration. The first calibration deficiency, discovered by analysis of high-signal-to noise data from the Wolf-Rayet binary program, was a "ripple" in the position angle wavelength dependence, which was ascribed to variation in the illumination of the waveplate over a track, and has been modelled fairly well using full field of view polarimetric observations on the full moon. A second effect has been found recently by comparison of SALT data with a new analysis of VLT FORS2 standard stars by Aleksandar Cikota of ESO. We have verified a small position angle dependent effect in the wavelength dependence of the degree of polarization, which we are in the process of calibrating using observations of stars through a polaroid. The new calibration, to be released in February, will allow recalibration of past on-axis spectropolarimetry, starting with the PG0900 grating. Other gratings, plus full field-of view coverage, will follow.

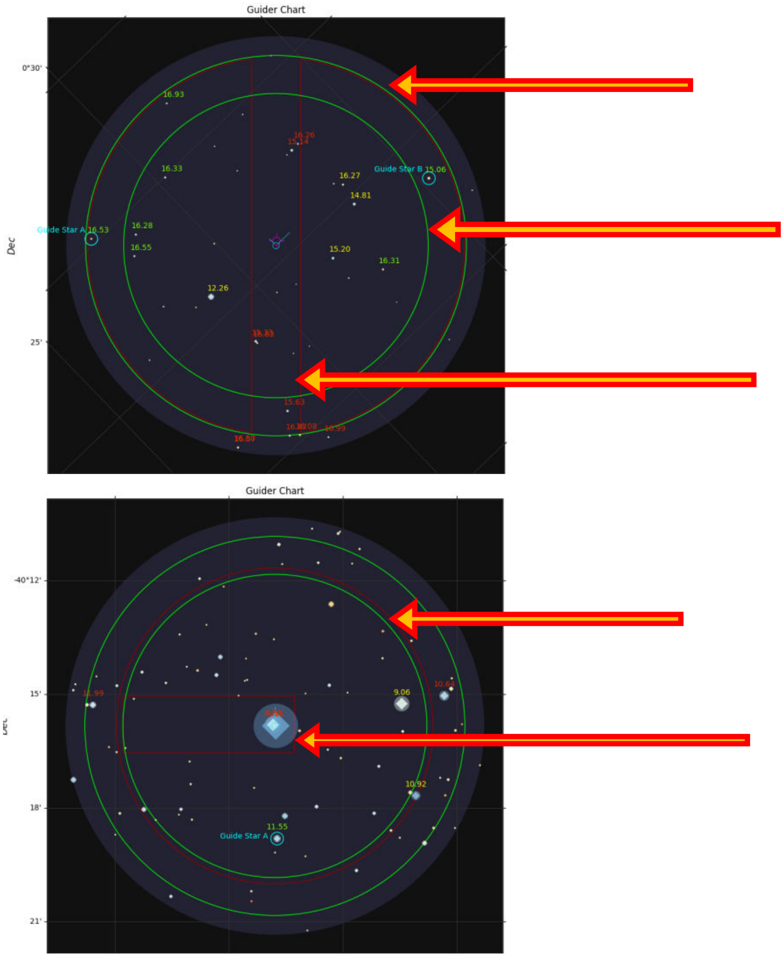
Danièl Groenewald & Kenneth Nordsieck.--

Efficiency project

The SALT Efficiency project has been very busy throughout 2024. Below are just some of the tasks that the project has been able to complete, allowing SALT to operate more efficiently.

1. **Guider Pre-Positioning**

The scripts of the Guider Pre-Positioning (GPP) code were designed to automatically choose guide stars and pre-position the guide probes (for RSS, HRS, and NIRWALS) before the start of each track, to increase operational efficiency.



- Green outer circle: SALTICAM FoV
- Green inner circle: Instrument specific FoV
- Red semi-circles: Exclusion zone for the RSS Slit
- Red circle: Exclusion zone for the FIF guide probe movement
- Red rectangle: FIF exclusion zone that takes sky fibres into account

Explanation of both the RSS and FIF guide charts.

So far, there has been only some basic functionality for the RSS guiders, but none for HRS or NIRWALS. Changes were made to the Guide Star Selection Script (GSSS) that made the chosen guide star more consistent across various blocks. Similar functionality was then duplicated for the FIF guide probe which gives guidance to both HRS and NIRWALS. Furthermore, some special attention had to be given to how the code dealt with NIRWALS blocks, as there is some functionality that is specific for how NIRWALS does observations compared to HRS and RSS.

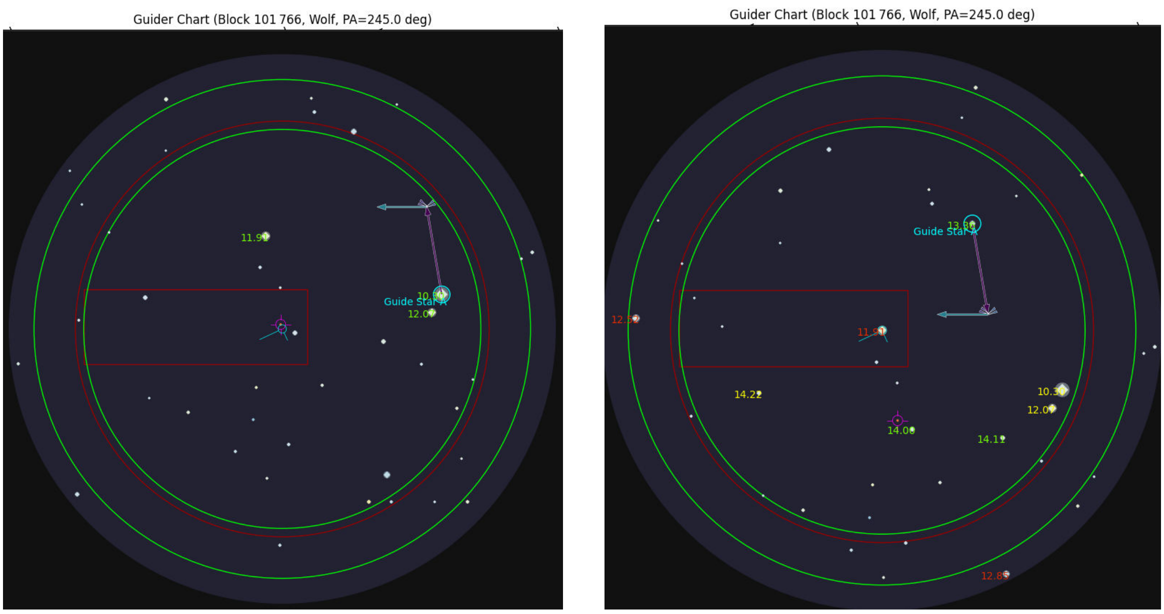
1.1 NIRWALS Dithers

Due to NIRWALS requiring dithers/offsets during observations, on some occasions, the chosen guide star would be shifted outside of the field of view, meaning that guidance would be lost for a period of time. The GSSS now queries the Science Database (SDB) for the offsets/dithers for the current NIRWALS block. Those offsets would be applied to all stars in the field and both sets of original and adjusted stars would be run through the GSSS to ensure that the chosen guide star did not move outside of the field of view during dithers. These changes take into account position angle as well, ensuring that the offsets are applied in the SALTICAM reference frame before being used in the GSSS. These changes were implemented in September, with on-sky tests successfully completed on 02 October.

1.2 NIRWALS Reference Stars

In certain instances, where the science target is faint, a reference star is acquired on first, then a known offset can be applied to the faint science target. In that case, the GPP GSSS will not be able to position the probes in the correct place (that is, the science target). This is due to the block information telling the telescope and the GPP that the science target is at the centre of the field. This is the correct approach and it would not be advisable to tell the telescope to point to the reference star instead. This functionality is not the case for every NIRWALS block.

The short term fix is for the GPP to check the first offset in the list that gets received by an SQL query; if it is a non-zero offset then that should indicate that the first offset is the one from the reference star to the science target. Knowing that a block uses a reference star, the first offset can be flipped, and the FoV of the guide chart can be shifted so that the reference star is at the centre of the field. This allows the SO to acquire on the reference star, have the guiders go to the correct place, and have guidance started before doing a guided offset to the science target.



FIF guide charts showing how the NIRWALS offsets are handled with the new reference star code. The left shows the functionality before, and the right shows the same chart after the new fix. The first offset is being flipped and one can see how the purple vector would go from the reference star at the centre of the field to the purple fiducial.

1.3 Magic Pixel

The original procedure for acquiring a science target was as follows:

- The telescope would be pointed to the science target, where the telescope would attempt to place the target at the centre of rotation of the FoV on SALTICAM.
- The operator would then have to flip the fold mirror to the relevant instrument, and then apply offsets to get the science target to fall onto the correct spot for whichever instrument was being used.

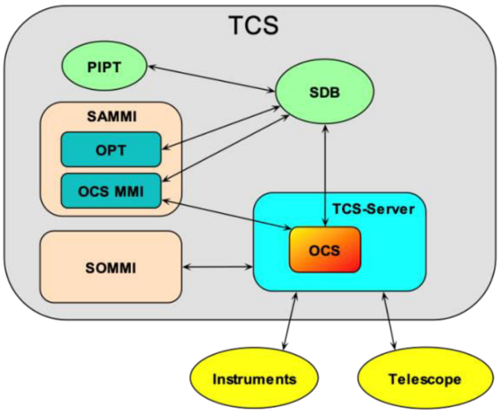
Since the location for the science target is theoretically the same for each respective instrument, time is being wasted not automating a repeatable process. On-sky tests were conducted to locate the co-ordinates of the ‘magic pixel’ location for each instrument. It was decided that once the science target is identified on SALTICAM, a single “click to instrument” can be done that sends the target to the ‘magic pixel’. The GPP will then move the guiders to the correct place for the guide stars, making adjustments for the ‘magic pixel’ of each instrument, since it is static and known at the point of slewing to the target. An acquisition image can then be taken and the fold mirror can be flipped to send the light to the correct instrument. New fiducials are being published on SALTICAM to show the SO the location of the RSS slit and where the science target should end up. For the FIF, new science target markers are published on SALTICAM.

The new procedure, implemented in September, is to:

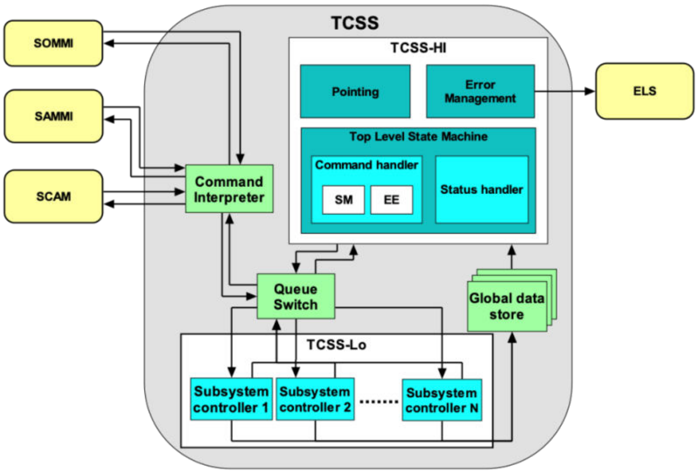
- Slew the telescope, where the science target is being placed at the centre of rotation of the field, then the SO can simply click on where the science target is in the field, and apply a ‘magic pixel’ offset which moves the target directly to where each relevant instrument needs it to be.
- The SO can then go directly to flipping the fold mirror, where the target will appear where it needs to be. No further offsets need to be applied and the SA can then go straight to taking exposures.

2. Observational Control System (OCS)

The current SALT Observation Control System (OCS) allows observation commands to be handled by the Telescope Control System Server (TCSS) for queue-scheduled operations. The OCS needs to coordinate actions across all subsystems and the TCSS itself. To allow for this, a special internal SALT Control Language (SCL) connection is made within the TCSS from the OCS module to the TCSS-CI (Command Interpreter). In this way, the OCS can act as a separate entity that can issue TCSS- (and subsystem) SCL commands to the TCSS.



High-level diagram of TCS that shows the basic communication between the OCS and the various sub-systems.



High-level diagram of the TCSS (Telescope Control System Server) architecture.

All the information for an observation block is 'unrolled' by the Observation Planning Tool (OPT) from the SALT DataBase (SDB) and populated into a set of temporary 'OCS' tables within the SDB. The OPT translates the proposal information into information relevant to each of the instruments, the payload, and the telescope. The OCS is commanded to execute one or more observation steps from the OCS Man-Machine Interface (MMI) and queries these OCS tables for all the required information.

2.1 Automatic Calibrations

The past few months have been spent augmenting the TCSS-hi OCS to be able to configure the payload calibration system based on the configuration specified in the selected observation step. These changes will allow for calibration configurations to be loaded from the OCS MMI and executed without intervention from the SO. Changes will be detected by the Payload and result in physical re-configuration of the calsys (cal-screen, lamps power, etc.). Any fine-tuning of, for example, the ND filter value setting can then be performed from the SOMMI calibrations tab once the default calsys setup is in place.

These changes were implemented on the 12 November with only minor tweaks needed over the following few nights. This new functionality removes any human communication error that could occur between the SALT Astronomer and the SALT Operator when trying to set up the calsys for calibrations. This will also make weekly calibrations easier, as certain configurations require specific setups that can be easily forgotten by the Astronomers.

Malcolm Scarrott.—

SALT Users Group

Dear SALT Users,

As you are hopefully aware, the SALT Users Group for Astronomical Resources (SUGAR) has been operational for about six months and is intended to provide an independent point of contact for users to raise requests, concerns, suggestions, or to provide feedback to the SALT Team. Areas that fall within our remit include: data quality, scientific performance, software bugs, SALT provided documentation, support issues or praise/thanks to the SALT Team. Requests for new software, or new features of existing software, can also be sent to SUGAR.

SUGAR is also responsible for soliciting input from users on scientific directions of upcoming instrumentation and telescope capabilities, when the time comes.

Users can contact SUGAR via the dedicated email address sugar@salt.ac.za or via the permanent Google form https://forms.gle/79WbduuHzWhmr5pbA The Google form is anonymous unless you provide your details.

The group meets every three months to discuss points raised by the community. These points are compiled by the group and sent to the SALT Board for information and action where needed. Therefore, SUGAR provides you, the SALT users, a direct feedback mechanism to both the SALT Team and the overarching SALT Board. We encourage you to contact us in the ways above to have your voices heard.

Kind Regards,
Daniel Holdsworth
Chairperson SUGAR

SALT at the 8th Oukaimeden International School for Astrophysics (OISA2024)

The Oukaimeden International School for Astrophysics (OISA) has made significant contributions to the development of astronomy in Africa. Since its inception in 2007, the school has served as a crucial platform for education, research, and collaboration in the field of stellar astrophysics across the continent. It has created a unique environment where aspiring astronomers and established experts from various African countries and beyond come together to share knowledge, ideas, and the latest advancements in the field. The school's emphasis on hands-on training, cutting-edge research, and international collaboration has played a vital role in nurturing a new generation of African astronomers. These ongoing efforts not only enhance the scientific capabilities within the continent but also make a substantial contribution to the global astronomical community, marking Africa as a rising star in the realm of astrophysics.

The eighth edition of the school, OISA2024, took place from 18 to 22 November 2024, in Marrakesh, Morocco. The event brought together early-career researchers for a week of skill-building, networking, and knowledge transfer. In addition to science talks, practical sessions were conducted, providing hands-on training on various missions and analysis of datasets. I gave a presentation on the Southern African Large Telescope (SALT), where I discussed the telescope and its attributes. This was followed by a hands-on session on submitting a SALT proposal, which allowed students the opportunity to use different simulation tools. The workshop enabled students from African institutions to build relationships that may evolve into collaborations utilising SALT. Feedback from participants was overwhelmingly positive; students appreciated gaining practical experience.

Itu Monageng.--

MEET THE TEAM: Austun Louw

SALT Telescope Operator

Hi, I'm Austun Louw! I was born in Williston, a small town in the Northern Cape. My journey in Astronomy began in 2013 when I received a scholarship from the SKA after completing Grade 8, which took me to Carnarvon. I completed high school there, graduating in 2017. During my final year, I was passionate about pursuing a career in space science, particularly Astronomy. However, finding proper guidance in this field was challenging, so I accepted an offer from the University of the Western Cape (UWC) to pursue a BSc in Physical Science, which I completed in 2021.

After my undergraduate studies, I joined the NASSP Honours program at the University of Cape Town (UCT) in 2022. My passion for Astronomy only grew stronger, leading me to pursue a master's degree in Astrophysics and Space Science at UCT.

My MSc research focuses on mapping galaxy distributions behind the Galactic Plane, specifically in the Zone of Avoidance (ZoA). I use HI emission data from the SARAO MeerKAT Galactic Plane Survey (SMGPS). This work brings us closer to understanding the dynamics of the Local Group and addressing the bulk flow problem—a fascinating challenge in cosmology.

Currently, I'm a contract SALT Telescope Operator, reporting to Danièl Groenewald. Working with the Southern African Large Telescope has been an incredible experience. Seeing stars, galaxies, supernovae, and nebulae up close is truly a dream come true.

– Austun

SALT SCIENCE PAPERS

August 2024 – November 2024

Below is the list of SALT publications since our last newsletter (for our full list of publications, please visit http://astronomers.salt.ac.za/data/publications/). We encourage SALT users to inform us of any papers making use of SALT data, and to double check the link above after publication.

- Gaudin, T. M., Coe, M. J., Kennea, J. A., et al. 11/2024: CXOU J005245.0-722844: discovery of a Be star/white dwarf binary system in the SMC via a very fast, super-Eddington X-ray outburst event, MNRAS 534, 1937 -- https://ui.adsabs.harvard.edu/abs/2024MNRAS.534.1937G
- Goldoni, P., Boisson, C., Pita, S., et al. 11/2024: Hidden by a star: The redshift and the offset broad line of the flat-spectrum radio quasar PKS 0903–57, A&A 691, L5 -- https://ui.adsabs.harvard.edu/abs/2024A&A...691L...5G
- Mathys, G., Holdsworth, D. L., Giarrusso, M., et al. 11/2024: Super-slowly rotating Ap (ssrAp) stars: Spectroscopic study, A&A 691, A186 -- https://ui.adsabs.harvard.edu/abs/2024A&A...691A.186M
- Krishnan, S., Markowitz, A. G., Krumpe, M., et al. 11/2024: An X-ray flaring event and a variable soft X-ray excess in the Seyfert LCRS B040659.9–385922 as detected with eROSITA, A&A 691, A102 -- https://ui.adsabs.harvard.edu/abs/2024A&A...691A.102K
- Doze, P., Hilton, M., Hughes, J. P., et al. 10/2024: A Multiwavelength Approach to Constraining the Merger Properties of ACT-CL J0034.4+0225, ApJ 974, 49 -- https://ui.adsabs.harvard.edu/abs/2024ApJ...974...49D
- Kollatschny, W., & Chelouche, D. 10/2024: Evidence for gravitational self-lensing of the central supermassive black hole binary in the Seyfert galaxy NGC 1566, A&A 690, L2 -- https://ui.adsabs.harvard.edu/abs/2024A&A...690L...2K
- Sneppen, A., Watson, D., Damgaard, R., et al. 10/2024: Emergence hour-by-hour of r-process features in the kilonova AT2017gfo, A&A 690, A398 -- https://ui.adsabs.harvard.edu/abs/2024A&A...690A.398S
- Coti Zelati, F., de Martino, D., Dhillon, V. S., et al. 10/2024: Short-term variability of the transitional pulsar candidate CXOU J110926.4-650224 from X-rays to infrared, A&A 690, A220 -- https://ui.adsabs.harvard.edu/abs/2024A&A...690A.220C
- Moharana, A., Hełminiak, K. G., Marcadon, F., et al. 10/2024: Spectroscopy of eclipsing compact hierarchical triples: I. Low-mass double-lined and triple-lined systems, A&A 690, A153 -- https://ui.adsabs.harvard.edu/abs/2024A&A...690A.153M
- Orio, M., Melicherčík, M., Ciroi, S., et al. 09/2024: V407 Lup, an intermediate polar nova, MNRAS 533, 1541 -- https://ui.adsabs.harvard.edu/abs/2024MNRAS.533.1541O
- Gallagher, J. S., Kotulla, R., Laufman, L., et al. 09/2024: An Imaging and Spectroscopic Exploration of the Dusty Compact Obscured Nucleus Galaxy Zw 049.057, ApJS 274, 3 -- https://ui.adsabs.harvard.edu/abs/2024ApJS..274....3G
- Shrestha, M., Bostroem, K. A., Sand, D. J., et al. 09/2024: Extended Shock Breakout and Early Circumstellar Interaction in SN 2024ggi, ApJL 972, L15 -- https://ui.adsabs.harvard.edu/abs/2024ApJ...972L..15S
- Iłkiewicz, K., Mikołajewska, J., Shara, M. M., Faherty, J. K., & Scaringi, S. 09/2024: Ancient Nova Shells of RX Pup Indicate Evolution of Mass Transfer Rate, ApJL 972, L14 -- https://ui.adsabs.harvard.edu/abs/2024ApJ...972L..14I

- Hatamkhani, N., Kraan-Korteweg, R. C., Blyth, S. L., & Skelton, R. E. 09/2024: The K _s-band Luminosity Function of the Rich Cluster VC04 in the Vela Supercluster, ApJ 972, 57 -- https://ui.adsabs.harvard.edu/abs/2024ApJ...972...57H
- Painter, S., Aydi, E., Motsoaledi, M., et al. 08/2024: Spectro-photometric follow-up of the outbursting AM CVn system ASASSN-21br, MNRAS 532, 4205 -- https://ui.adsabs.harvard.edu/abs/2024MNRAS.532.4205P
- Guha, L. K., & Srianand, R. 08/2024: Strong nebular emissions associated with Mg II absorptions detected in the SDSS spectra of background quasars, MNRAS 532, 3056 -- https://ui.adsabs.harvard.edu/abs/2024MNRAS.532.3056G
- Barnard, J., van Soelen, B., Acharya, S., et al. 08/2024: The optical spectropolarimetric behaviour of a selection of high-energy blazars, MNRAS 532, 1991 -- https://ui.adsabs.harvard.edu/abs/2024MNRAS.532.1991B
- Greenwell, C. L., Klindt, L., Lansbury, G. B., et al. 08/2024: The NuSTAR Serendipitous Survey: The 80 Month Catalog and Source Properties of the High-energy Emitting Active Galactic Nucleus and Quasar Population, ApJS 273, 20 -- https://ui.adsabs.harvard.edu/abs/2024ApJS..273...20G
- Jacobson-Galán, W. V., Dessart, L., Davis, K. W., et al. 08/2024: Final Moments. II. Observational Properties and Physical Modeling of Circumstellar-material-interacting Type II Supernovae, ApJ 970, 189 -- https://ui.adsabs.harvard.edu/abs/2024ApJ...970..189J
- Wu, Z., Dong, S., Yi, T., et al. 08/2024: Gaia22dkvLb: A Microlensing Planet Potentially Accessible to Radial-velocity Characterization, AJ 168, 62 -- https://ui.adsabs.harvard.edu/abs/2024AJ....168...62W
- da Silva, R., Danielski, C., Delgado Mena, E., et al. 08/2024: Ariel stellar characterisation. II. Chemical abundances of carbon, nitrogen, and oxygen for 181 planet-host FGK dwarf stars, A&A 688, A193 -- https://ui.adsabs.harvard.edu/abs/2024A&A...688A.193D