The "https://topswiki.saao.ac.zanew"https://topswiki.saao.ac.za 1-m telescope was installed in the dome that previously housed a 30-inch telescope. The telescope was built by APM Telescopes[1] and was lifted into the dome on 02 August 2016. Commissioning is currently underway.

The 30-inch telescope was donated to the University of Kwa-Zulu Natal.

Watch this space!

Commissioning Aids

Centre of rotation on SHOC

19 Jan 2017: (527,538) - SHOC removed to check mounting (all ok) & countersink ND filter wheel screw below camera mount plate

18 Jan 2017: (530,527) - secondary retaining ring & radial screws tightened

7 Nov 2016: (524, 527) - primary & secondary mirror retaining screws & secondary retaining ring tightened

Latest model (model_38s) based on 18 Jan pixel coordinates

Start-up recipe

- From thin client, log in as ccd30
- Open a terminal and ssh -X observer@1ms1.suth.saao.ac.za
- rts2-mon
- Manually switch off dome lockout on observing floor
- centrald -> "https://topswiki.saao.ac.zaopen"https://topswiki.saao.ac.za to open dome, followed by baffle and mirror covers (N.B. currently only works for the dome covers, so go to APM0 menu and type "https://topswiki.saao.ac.zaopen"https://topswiki.saao.ac.za for baffle and mirror covers)

Shutdown recipe

- Park telescope: currently using T0 -> "https://topswiki.saao.ac.zaaltaz 50 90"https://topswiki.saao.ac.za until the "https://topswiki.saao.ac.zapark"https://topswiki.saao.ac.za function is fixed (do NOT use "https://topswiki.saao.ac.zapark"https://topswiki.saao.ac.za for now as the telescope position will time out and all sorts of things will go belly up on restarting everything).
- centrald -> "https://topswiki.saao.ac.zaclose"https://topswiki.saao.ac.za to close mirror covers, baffle cover, then dome
- Manually lockout the dome using the switch on the observing floor
- Manually park the dome pointing to the West using the buttons on the control box on the North side of the observing floor

Running SHOC through rts2

- Start rts2 control of SHOC on shocndisbelief:

ssh ccd@shocndisbelief.suth.saao.ac.za
sudo bash
cd /home/petr/rts2/src/camd
sudo killall CameraServer && sudo ./rts2-camd-andor --server 1ms1.suth.saao.ac.za

- Take images with SHOC:

ssh -X observer@1ms1.suth.saao.ac.za
rts2-xfocusc -d C0 -e 1
(where -e is the exposure time option. Add "https://topswiki.saao.ac.za-X 1"https://topswiki.saao.ac.za to overlay grid lines).

- Take and save an image with SHOC:

CTRL-C out of rts2-xfocusc
rts2-scriptexec -d C0 -s 'ADCMODE=15 E 1'

Running SHOC from web browser after running it through rts2

- This won't work without first rebooting shocndisbelief:

ssh ccd@shocndisbelief.suth.saao.ac.za
sudo reboot -h now

Need to then restart data spooling to the server:
(1) copy the temporary files that were written to /data/spool on the spindle drive to the SSD. Procedure:
mount /dev/sdb1 /mnt
rsync -avz /data/spool/* /mnt/

(2) umount the SSD from the /mnt mount point
umount /mnt
(3) Mount the SDD on /data/spool
mount /dev/sdb1 /data/spool

(4) Check it's mounted
df -h

See https://itwiki.saao.ac.za/index.php/Standard_Nagios_Notifications for more info.

Running AG Lodestars through rts2

- Check whether Lodestar is connected:

ssh pi@1mag1.suth.saao.ac.za (or pimag2 for DER2)
lsusb
Look for "https://topswiki.saao.ac.zaStarlight Xpress Lodestar autoguider"https://topswiki.saao.ac.za in output

- Start rts2 control of Lodestar on the pi:

ssh pi@1mag1.suth.saao.ac.za
sudo bash
/etc/init.d/rts2 start

- Take images with the Lodestar:

ssh -X observer@1ms1.suth.saao.ac.za
rts2-xfocusc -d AG1CCD -e 1
(where AG1CCD is on DER1 and -e is the exposure time option).

- Take and save an image with the Lodestar:

CTRL-C out of rts2-xfocusc
rts2-scriptexec -d AG1CCD -s 'E 1'

- Loop multiple saved images:

rts2-scriptexec -d AG1CCD -s 'for 5 {E 1}'
(also rts2-xfocusc --save)

Pointing tests

Follow section on **Running SHOC through rts2** then

Run the model:

```
run_model_random3
```

Build the model:

```
gpoint --refine /etc/rts2/T0_model --filter 'model-err:15' align -o ~/model_XXs

cd /home/observer

sudo cp model_XXs /etc/rts2

sudo rm /etc/rts2/T0_model

sudo ln -s /etc/rts2/model_37s /etc/rts2/T0_model

sudo rts2-stop T0

sudo rts2-start T0
```

Troubleshooting

- Naughty telescope claims "https://topswiki.saao.ac.zaTrying to contact centrald"https://topswiki.saao.ac.za and rts2-mon won't start:

```
sudo /etc/init.d/rts2 start
```

- Certain subsystems don't wake up:

```
sudo /etc/rts2/start-rts2
```

- Certain subsystems don't wake up with start-rts2 command above:

```
ps -Af | grep rts2
sudo killall <relevant process>
```

where <relevant process> could be: rts2-centrald - comms (?)
rts2-apm-multidev - mirror & baffle cover & primary mirror fans
rts2-teld-sitech-altaz - alt & az motors
rts2-sitech-focmirror - M2 and M3
rts2-rotad-sitech
rts2-httpd - for thrift?
rts2-cupola-saao - dome

Then restart:

```
sudo rts2-start <relevant process>
```

e.g. rts2-start CUP

- Derotators still don't wake up with start-rts2 command above:

```
sudo rts2-rotad-sitech -f /dev/derotators --defaults-der1 =/etc/rts2/D1.ini --defaults-der2 =/et
```