



SAAO Standard Operating Procedure

Title: 1m Telescope operational checklists
for observers and technicians

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Personnel authorized to perform procedure: SAAO Technical Operations Staff

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Prepared by: Stephen Potter *Signature:*
Piet Fourie

Checked by: Hannah Worters *Signature:*

Approved by: Ramotholo Sefako *Signature:*



VERSION HISTORY

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ACRONYMS AND ABBREVIATIONS

NRF	National Research Foundation
SAAO	South African Astronomical Observatory
SOP	Standard Operating Procedure

DEFINITIONS

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1. Purpose

The purpose of this document is to provide checklists specific to the operation of the 1-meter telescope when for both local and remote operation.

2. Constraints and Warnings

These procedures should only be undertaken by trained personnel.

3. Technician Daily checklist

The following checks must be performed to ensure the telescope is safe whilst in an idle state during the day.

DOME FLOOR CHECKS

1. Steps and Ladders stowed
2. Liquid Nitrogen filler hoses and dewar's and equipment disconnected and stowed
3. set RA and DEC drives to **FAST**
4. Auto Dome rotation = **MANUAL**
5. Dome lights set to **OFF**
6. Ensure that nothing can obstruct dome rotation or telescope movement

CONTROL ROOM CHECKS

1. On mimic panel Telescope power is **OFF**
2. On mimic panel SMD drive switch set to **OFF**
3. On mimic panel TCS lockout to **ON**
4. TCS PC is **ON** and the TCS software is running
5. Instrument PC is **ON**
6. ALL lights = **OFF**

4. Duty Astronomer Remote Observing checklist (ON REQUEST)

The following checks must be performed to ensure the telescope is safe for remote observing.

1. Assess the weather conditions to determine whether remote observing is safe to proceed.
2. Assess general telescope readiness
3. Establish primary and contingency (mobile) communication link with remote observer

DOME FLOOR CHECKS

1. Steps and Ladders stowed
2. Liquid Nitrogen filler hoses and dewars and equipment disconnected and stowed
3. RA and DEC drives set to **FAST**
4. Auto Dome rotation = **MANUAL**
5. Dome lights set to Off
7. Ensure that nothing can obstruct dome rotation or telescope movement
6. Lockout mode = **ON**

CONTROL ROOM CHECKS

1. Telescope power is **OFF** on mimic panel
2. SMD drive switch on mimic panel set to **OFF**
3. TCS PC is **ON**
4. Instrument PC is **ON**
5. TCS lockout to **OFF** on mimic panel in the control room
6. ALL lights = **OFF**

5. 1.0-m Start-up Recipe for Observers

Start of run

Check that telescope focus is in correct range:

SHOC/STE3/STE4 ~ 1035-1080

Make fine focus adjustments on target.

Start of night

If Weather:

windspeed < 60 km/h; humidity $T_{\text{external}} - T_{\text{dew}} > 1.5$; and generally clear skies

1. Check **observing floor is clear**: ladders, people, cables etc
2. Check all observing floor & downstairs **lights are off**
3. In control room: switch mimic panel **TCS lockout to off** (not on)
4. On TCS: start TCS, crash_limits and GS_FC software
5. On TCS: switch **on telescope power**
6. On TCS: open **dome shutters**
7. On TCS: open **mirror covers**
8. On TCS: lower **wind blind**
9. On TCS: initialise **XY-slides**
10. On instrument PC:
 - a. Take a bias and check that **data** saves to:
 - i. Itsp.suth:/data/40in/imag40 (STE3/STE4)
 - ii. Itsp.suth:/data/40in/sha (shocnawe)
 - iii. Itsp.suth:/data/40in/shd (shocnadisbelief)
 - iv. (username = **ccd40** ; password = **Saoccd40**)

Night time tasks

- For STE3 & STE4: fill in the triplicate **SAAO CCD Camera Log Book** for each exposure.
- Fill in the **Sutherland Observing Record** form
- Report any faults here:
<http://faultreports.saa.ac.za/index.php?board=4.0>
(username= **Tel40** ; password = **SaoTel40**)

6 1.0-m Shutdown Recipe for Observers

End of night

1. **Stop** instrument & autoguider **exposures**.

Turn off SHOC camera

2. Initialise **XY-slides**.
3. On TCS: **Park telescope** at HA= -1h, Dec = 0° in **FAST** mode.

Once parked check that (If not, click appropriate buttons on TCS):

RA and Dec in FAST

Dome in manual

Tracking is OFF

4. On TCS: **Close mirror covers**.
5. On TCS: **Close dome shutters**.
6. On TCS: **Lower wind blind** (if appropriate).
7. On TCS: **Switch off telescope power**.
8. **Do not exit** TCS, crash_limits and GS_FC software

Closing in bad weather

Perform steps **4 & 5 first**.

Wind speed >60km/h

Humidity: $T_{\text{ext}} - T_{\text{dew}} \leq 1.5$

Heavy cloud

If wind speed >60km/h, park dome with **shutters facing into the wind**

Needs to be done from control panel on dome floor

End of observing run

- Fill in online **Observers' Feedback Form**:
<http://www.sao.ac.za/observing/feedback-form/>
- **Copy data** to take home.
- Put **Sutherland Observing Record** form in End of Run tray in warm room.
- For STE3 & STE4: Tear out 1st & 2nd copy of each completed page in triplicate **SAAO CCD Camera Log Book**. Keep 1st copy and put 2nd copy in End of Run tray.

7. Remote observing station startup recipe for Observers

Power on stereo

Remote Desktop TCS:

- **Login:**

user: remoteops

pwd: Saaoremoteops

- **Start webcam interface**

open xterm

type: rdesktop -g 1200x1000 -u ccd40 -d SAAO -r sound:local
appserver.cape.saa.ac.za

Keep window on left monitor

user: ccd40

pwd: Saaoccd40

close any system window messages etc

Internet explorer double click

should default to <https://40incam.suth.saa.ac.za>

close any pop ups

click continue with security warnings, ignore security warnings

user: operator

pwd: 40incam

may take a few (5) minutes or a few attempts

sometimes no sound, disconnect from appserver and try again from xterm

- **Start Remmina Remote Desktop Client:** (task bar icon (single click)
or under search)

double click 40inch_tcs

VNC password: 40inch_r

keep window on right monitor

TCS login screen (If not already logged in)

user: ccd

pwd: 40inchtcs

Click task bar icons to start 3 programs:

TCS, crash_limits, GS_FC (GuideStar_FinderChart)

Pre-observing webcam image and sound checks

On TCS

- grab telescope control

- Switch on power
- Dome - switch on circle lights
- Initialize x-y slides .. listen for sound from webcam
 - Check volume up on Remote Desktop
 - Click on empty desktop and press Fxx
 - Volume up on stereo
 - Volume up on windows appserver

Remote Desktop instrument

- **login:**

user: remoteops

pwd: Saaoreremoteops

open firefox

shoc40in.suth.saa0.ac.za:5000/camera/

user: shoc40in

pwd: Saa040in