LOCATION : **Sutherland**
TELESCOPE : **1.0 m (40") or 1.9 m (74")**

LIMITS: [wind speed < 60 km/h] & [humidity < 90 %]

TELESCOPE & GUIDING CONTROL PROGRAMME (TCS)

ZEROPOINTS (to allow accurate pointing):

- "XY slides Control" → INITIALIZE

- **Determine ZEROPOINTS:**
- "EQUINOX" must match RA&DEC coordinates to be entered [type it in and ENTER it]
- choose from the "Bright stars" in the Astronomical Almanac and SLEW telescope to it
- → GUIDE MIRROR IN BEAM
- "Exposures & Guiding" → WINDOW → "full frame"
- "Exposures & Guiding" → EXP time → 0.25 s
- place bright star in the center of TCS screen window
- P → ZEROPOINTS → "Enter RA&DEC of star"
- write down the X & Y zero points displayed in the white Comments Box, for next time
  OR
- **Use previously determined ZEROPOINTS:**
- P → ZEROPOINTS → "Enter zero points directly"

TARGET

- "XY Slides control" → Go To → X=0 and Y=0
- O → TARGET → "enter RA & DEC" and then press SET and CLEAR
- "EQUINOX" must match RA&DEC coordinates entered [type it in and ENTER it]
- SLEW telescope to coordinates
- → GUIDE MIRROR IN BEAM
- "Exposures & Guiding" → WINDOW → "full frame"
- "Exposures & Guiding" → EXP time → adjust together with :
  Scale (vertical bar) and brightness & contrast (horizontal bars) until star-field is visible
- identify star-field in FoV by comparing to finder chart and put target on the red marker
  [indicating the center of CCD]

GUIDE STAR

- Telescope PC → open Xwindow → cd guiders → source runit   [DS9 type interface]
- → Analysis / DSS server
- → enter RA & DEC of target to be observed in 10'x10' view & RETRIEVE
- Target is in center. Choose guide star far outside the circle (brightness > 2 x background)
- TCS → XY slides → GO TO → enter X and Y coordinates of chosen guide star
- → GUIDE MIRROR OUT OF BEAM   [you will now see your chosen guide star]
- CCD controller → Video mode → put target in desired location on CCD
- "Exposures & Guiding" → EXP time → must be < 4 sec for proper guiding
- TCS → XY+Win+G → click on brightest star in FoV
  [telescope guiding engaged : GUIDE is green] and WINDOW minimizes automatically
- To STOP or restart guiding, press GUIDE
- STOP "XY Slides Control" and "Exposures&Guiding" when done with target