

GIRAFFE Observing Recipe

1. Filling the cryostat

After filling the cryostat, you must wait 30 mins before beginning observations. During the day, ask a technician to show you how to fill.

The technicians will fill the cryostat at ~08:00 and ~16:00 (check that this has been done before you start observing). The **observer must fill the cryostat** either at ~19:00 **and** at the end of the night, **or** at ~00:00, **whether or not observations have been made.** The pressure of the LN2 tank should be ~10 bar when filling the cryostat, and must not exceed 15 bar. The CCD temperature should be ~180K.

2. Instrument setup

The instrument is controlled by the QUARTZ software on giraffe PC.

2.1 Starting the software

- 1) Log on as **ccd** (usual password)
- 2) cd to working directory
- 3) cp giraffe.str file from another user directory (e.g. TPyx)
- 4) Enter command: **quartz**
- 5) In the CCD menu, select **MUS1**
- 6) Select “Local setup files” → select “giraffe.gir” → “Ready” → “Ok”

2.2 Initialising the prisms & filters

Do this at the start of the run, using options available by clicking on the “Init” button at the top right of the QUARTZ window:

- 1) Select “Init” → “**Find reference**” and wait for “Finding reference...” window to close
- 2) Select “Init” → “**Define red**” or “**Define blue**” depending on the prism you wish to use and enter prism position
- 3) Select “Init” → “**Red/blue position go**” and wait for “prism movement” and “detector motion” messages to clear
- 4) Check and note down the prism position in the “Prism” status box at the bottom of the QUARTZ window.
- 5) Select “**Filter**” → “**Init**” **at start of run & before any filter change**
- 6) By taking an arc (follow steps 1-2 in Section 4.1), check the resulting orders are correct and spectrograph focus is good (see Section 5).

3. Calibrations

3.1 Camera Flats

At the start of the run, or after a software crash, obtain camera flats as follows:

- 1) On the bench in the Coudé room, slide the white screen in front of the camera. Switch on the small lamp (red bulb) from the shelf below and place it in front of the screen so as to illuminate it as uniformly as possible.
- 2) Select “**ND Pos 1**” and “**Mir Pos 3**” in the QUARTZ “Control” panel
- 3) In the bottom left window of the QUARTZ software, type ***CAMERA**
- 4) Click the “Expose” button in the “Control” panel on the right of the QUARTZ window and enter the exposure time. Counts should be as high as possible (<50000) without saturating.
- 5) After readout, check the information box on the bottom left – if saturated pixels are reported, reduce the exposure time. **Flats with saturated pixels cannot be used.** If satisfied, save to disk.
- 6) Check image saves to *giraffe.suth:/data/image* and check header info to ensure it is **your** file (not an old file with the same name).
- 7) Expose and save **10 camera flats.**
- 8) **Remove the lamp and screen.**

3.2 Fibre Flats

At the start of an observation, take ~7 fibre flats as follows:

- 1) Rotate the silver knob on the GIRAFFE head on the telescope to the **IN** position, to insert a filter into the beam.
- 2) Select “**ND Pos 1**”, “**Mir Pos 3**” and “**Lamp**” in the QUARTZ “Control” panel.
- 3) Click the “Expose” button in the “Control” panel on the right of the QUARTZ window and enter the exposure time. Counts should be as high as possible (<50000) without saturating. Depending on prism setting, it may be necessary to use a different ND filter.
- 9) After readout, check the counts in the image and the information box on the bottom left – if saturated pixels are reported, reduce the exposure time. **Flats with saturated pixels cannot be used.**
- 10) If satisfied, save to disk. **Expose and save 7 fibre flats.**
- 11) On QUARTZ, click to switch **OFF “Lamp”**. At the telescope, rotate the silver knob on the GIRAFFE head to the **OUT** position.

4. Observing

4.1 Arcs

At the start of an observation, take 3 arc exposures as follows:

- 1) Select “**ND Pos 1**”, “**Mir Pos 3**” and “**Arc**” in the QUARTZ “Control” panel
- 2) Click the “Expose” button in the “Control” panel on the right of the QUARTZ window and enter the exposure time. **It is ok to saturate a few pixels of an arc exposure.**
- 3) Switch on APD: click “APD” button in QUARTZ “Control” panel.
- 4) In the “Expose” software running on the small CRT to the left of the warm room, click “Start” to check the APD counts (~1.4M for arc).
- 5) After readout, check counts on the image & in the QUARTZ info box on the bottom left. Counts should be as high as possible (<50000).
- 6) If satisfied, save to disk. Expose & save **3 arcs**. **Switch OFF “Arc”**.
- 7) **Switch OFF the APD when slewing/taking camera or fibre flats.**

4.2 Target exposures

- 1) Select “**ND Pos 1**” and “**Mir Pos 1**” in the QUARTZ “Control” panel
- 2) Type “***target_name**” in the text box at the bottom left (e.g. *TPyx)
- 3) Click the “Expose” button in the “Control” panel on the right of the QUARTZ window and enter the exposure time.
- 4) After each object exposure, take an arc.

5. Locating target on fibre

On TCS, initialise XY-slides and place star on approximately these acquisition camera image coordinates [**guide mirror in beam**]: (235, 55)

Make fine adjustments to star position by moving telescope to increase APD counts.

To view star on fibre, move XY-slides to this position [**guide mirror out of beam**]: x=590, y=-12900

Approximate focus values

Telescope: ~2090

Giraffe: experiment with $\frac{1}{4}$ turns of focus knob till arc lines have approx equal FWHM across the field.

Please leave QUARTZ running at the end of the night.