Checklist: <GRIS observations (slit)> <GRE-GRIS-KIS-CL-0009>

Startup

- Using TigerVNC connect from a FSG to the computer ARM1 (161.72.22.76:2). Use the password for the user tip.
- The AO GUI and derotator GUI must be running.
- On ARM1 go to /scratch/tip. Create a directory for the day (e.g. 20250528). Inside it create the directory level0. Execute "polar" inside the folder level0 of the correct date.
- Create a .txt file in the daily directory (e.g. 20250528) as an observing log (see "/scratch/tip/examples/slit" or "/scratch/tip/examples/IFU" directories)

Observations

As the first thing in the morning, if the seeing is good, start the observations. Take **flats every 1-1.5 hours**. Take a telescope calibration at any moment during the morning. Perform a target at any time of the day for the data reduction (alignment).

Science data: operation=scanning

- Make sure the derotator is tracking.
- Use 10 accumulation, 50 ms exposures for 1.56 μm and 100 ms for 10830 for slit mode
- Use 10 accumulation, 30 ms exposures for 1.56 μm and 70 ms for 10830 for IFU mode
- "#Operations" can be set >1 to repeat rasters
- SJ acq: Use 1 to save one SJ image per raster step

Target scan: operation = scanning

- Lock the AO on the USAF target. Make sure TT offloading is disabled in the AO.
- Use 2 acc., 1 rep, 200 steps in slit mode. Integration time: same as for science data
- Use 2 acc., 1 rep, 10 V and 5 H steps in IFU mode. Integration time: same as for science data

Flatfields: operation = flat field

- Start telescope flatfield mode around disk center with no magnetic activity
- Derotator should be in but stopped.
- Use 10 acc., 50 steps. Integration time: same as for science data
- Use 10 acc., 50 V steps. Integration time: same as for science data

Telescope calibration: operation=telescope cal.

- Go to disk center. Derotator should be in but stopped.
- Stop AO and deselect M11 pupil control
- Beam tracker should be stopped
- Use 10 accumulations
- Integration time: same as for science data.
- The operation preforms 74 steps by default. Do not use the 'instrument' calibration.
- When finished, revert the changes done in the first three lines.

Data Reduction

In the directory of the day create a calibration IDL routine (e.g. cal01jun24arm1.pro for slit observations). Its layout is:

```
pro cal01jun24arm2

target= '01Jun24ARM2.010'
```

```
data = limits_fov(target)

lambda = 8542.

fileff = '01Jun24ARM2.002'
filecal = '01Jun24ARM2.012'
map     = '01Jun24ARM2.000'
gris_v9, map, fileff, filecal, lambda=lambda, fts=1, data=data,newgrating=1,/xtalki
```

- The last 4 lines need to be copied and adapted for each observed map.
- The reduction creates fits files in the level1 directory (their names end in cc, but they can be read via e.g. readfits). Their dimensions are [lambda, pixel along slit, iquv for each step].
- If flatfields are taken close before and after your science data, specify them with fileff=['flat1','flat2'] to use both.
- When reducing maps with multiple rasters, only specify the main map (e.g. 004, not 004-1)
- **For IFU observations, the `target` and `data` lines should be removed, and the `data=data` keyword should also be omitted when calling `gris_v9`.**
- Additional information on the reduction files can be found in the Upgraded GRIS Manual.

Warnings/Notes

- **If slit and lens moved and are out of focus**
  => Click on the "Set Mid" button in the SlitScanner GUI. This will move the system to the default values.
- **Darks**
  => darks are not needed because each sequence automatically starts with a few frames with the shutter closed.
- **For more information, including the IFU mode, see GRE-GRIS-IAC-MAN-0009.**

Change Log				
Vers.	Date DD/MM/YY	Author	Description of Changes	Sect./Para.
1	18.08.18	L. Kleint	New Document	
2	14.01.18	L. Kleint	Derotator can be kept on for FF. Reference to manual.	
3	1.7.20	L. Kleint	gris_v7; SJ images instructions	
4	26.5.21	L. Kleint	gris_v8, target scan, updated data red., slit offset	
5	27.6.25	C. Quintero & J. C. Trelles	Complete revision to include the new observing modes and the multi-wavelength options	