LED Dome Flats

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- No need / better NOT have the telescope running (no oil system in basement) But TCS must be running to see telescope ALT, AZ, and DOME AZ readout.
- Telescope points to white square in dome at DOME AZ=351°, and telescope fixed AZ=180° (same as stow), manually bring Alt to 30°

Bringing the screen South by turning the Dome

- Before taking flats, turn the Dome so that screen is due South of the telescope:
  - Open TCS glue. And turn on dome TV monitor.
  - In dome remove DOME SHORT and plug in YELLOW PLUG for dome.
  - Make sure that LN2 35-lt supply tank is removed from under telescope, and the grounding wire is removed.
  - Take out stow pins.
  - In control room turn on pa system loud.
  - In Vattel room, turn on "Dome current" with white switch.
  - TCS GUI: click left mouse button to turn on dome tracking; when tracking is on, right click on dome tracking box to open dome subwindow. In the subwindow click "Tracking" to turn it off ⇒ Manual. (get manual control) This enables the Rotate CCW and Rotate CW commands. Click and hold Rotate CW and watch dome in TV screen above console. Stop when dome AZ=351.

- After finishing your flats, return dome to home AZ 180°:
  - In DOME Tracking subwindow: click on "manual" to switch to "tracking" and dome automatically returns almost to home. Close the subwindow, and cycle Dome Tracking off/on a few times to bring it to true home of AZ=l80°.

Manual adjustment in ALT

- Before taking flats, tilt the telescope in ALT manually so that it points at the screen:
  - In mount control, click "open mirror cover."
  - Send co-observer to the dome while observer sits at TCS terminal.
  - Observer: click "brake off" while co-observer is standing next to the telescope. (If telescope starts to fall down in ALT independently, co-observer should tel1 observer to put brake back on.)
  - Co-observer: pull telescope down by muscle power, making sure to pull on the mirror cell

or something robust and not on an instrument or anything delicate, while observer is watching and communicating the altitude; when telescope is stopped at ALT=30°, observer should click brake back on.

- After finishing your flats, return Telescope ALT to 90° by reversing how you put it to 30°:
    - Co-observer in dome ready to push up, after observer at console releases brake, and tells when ALT=90°. Then brake on, stow pins in. Close mirror cover.

Flatfield LED GUI

It is an INDI GUI and as such opens in a browser. There ought to be a bookmark. In general, go to vattarchive (or vattarchive.vatt; locally 10.0.1.12). The browser will show you a directory (/home/mfranz/public_html/) with two directories: `flatfield` and `vattarchive`. Open `flatfield`.

- If there is a bookmark (favorite) it may be called "Vatt flatfield LED GUI." This opens the GUI with all the lamps OFF. So to turn on lamps, click on boxes or on sliders to select percent illumination
- make test flats to your satisfaction. Keep exposure times above about 4 or 5 seconds to avoid shutter-effect dependence
- when finished flats, click lamps off, then close IE browser

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