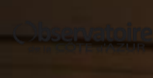




CHARA software for the mobile Telescope

Rainer Koehler
(rkohler@gsu.edu)

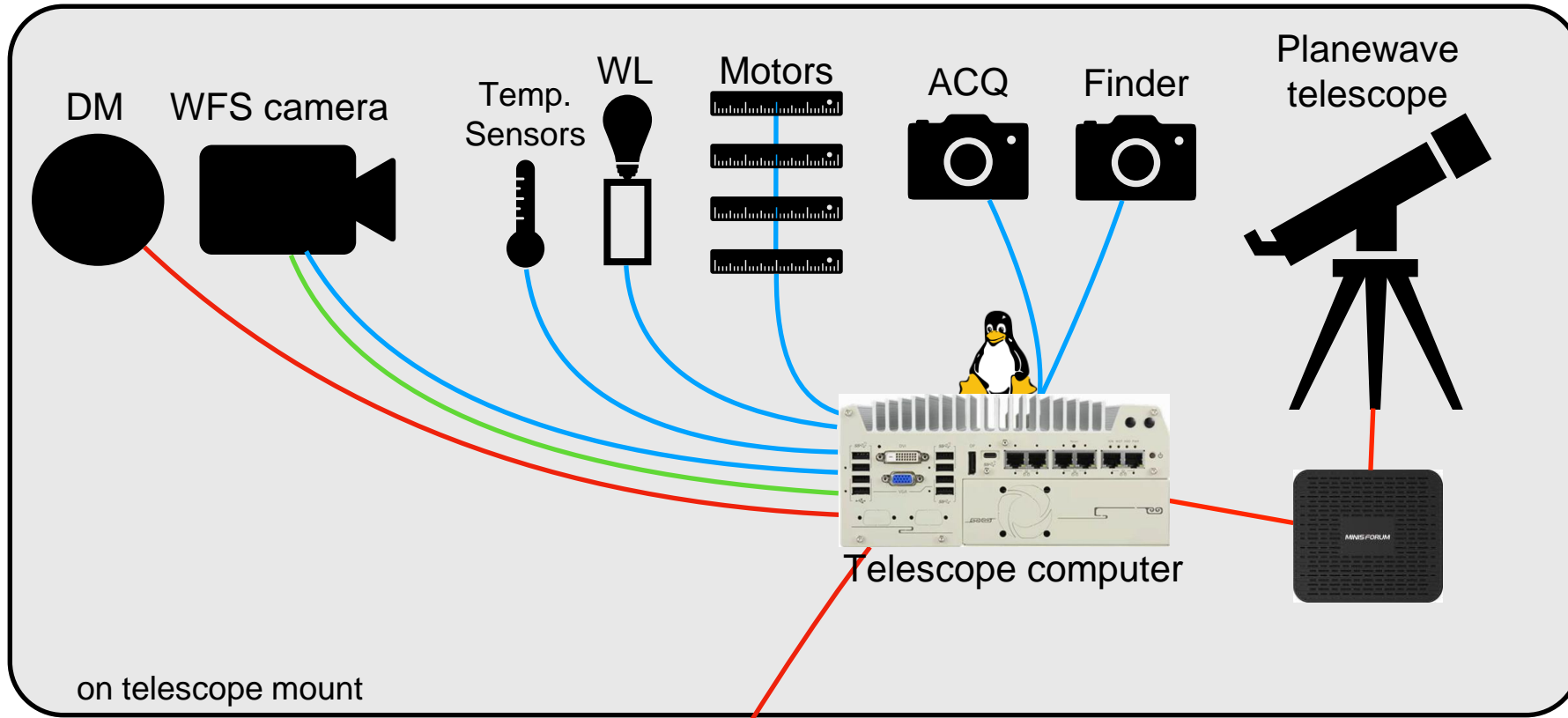




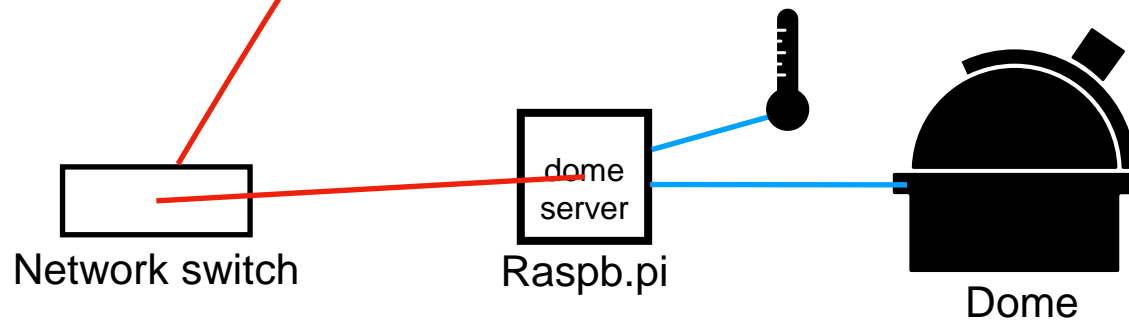
Servers at the existing telescopes

- Telescope server (for the telescope and things around it)
- Dome server (for the dome and things inside)
- HuT server (Humidity & Temperature - controls AO bench)
- Secondary mirror
- Finder & Acquisition camera
- Wavefront Sensor (telescope AO)
- LabAO

Mobile Hardware



- Ethernet
- USB
- Cameralink

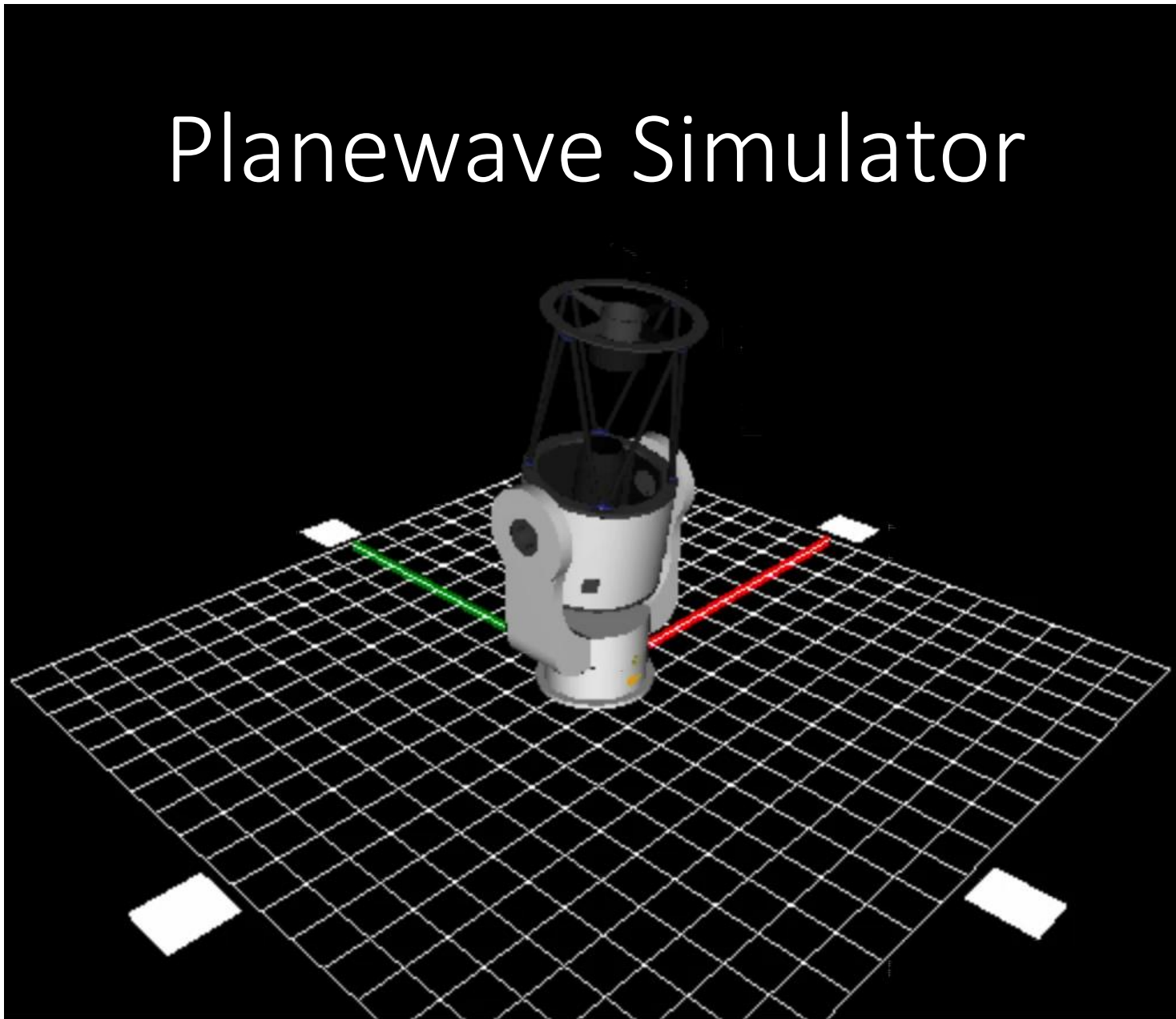


The real Hardware





Planewave Simulator



PlaneWave Interface

- Windows software
- Runs on Linux with “mono” emulator
- GUI on Linux is sloooooow...
- Mini windows-PC between telescope and main computer
- Remote control via network (http)

Name	Value
Latitude	33:52:13.7
Longitude	-118:14:49.5
LST	23:13:47.45
JD	2460377.335185
Points in model	0
Model fit RMS	0.0"
Comm loop (msec)	58.0
Target type	(none)
Tele RA (J2000)	23:12:33.23
Tele Dec (J2000)	-11:16:29.3
Tele RA (Apparent)	23:13:47.45
Tele Dec (Apparent)	-11:08:46.3
Tele HA	00:00:00.05
Target RA (Appar...)	none
Target Dec (Appar...)	none
Azimuth (degs)	180.000
Altitude (degs)	45.000
Axis0 Error (")	0.00
Axis1 Error (")	0.00
Axis0 RMS (")	0.00
Axis1 RMS (")	0.00
Axis0 current (amps)	0.000
Axis1 current (amps)	0.000
Field Angle Here (...)	0.0002
Field Angle at Tot...	0.0000

CHARA-server/client

```

rainer@ptreectr: ~/Planewave/server
**** Planewave telescope server ****

JD: 2460378.57299703
UTC: 2024-03-09 01:45:06.9434
LST: 05:01:07.2 = 5.0187 hours

Telescope: Az 179.998 deg El 80.000 deg
Telescope: RA 04:59:39.6 Dec 23:49:49.7 (J2000)
Telescope: RA 05:01:07.3 Dec 23:52:03.2 (apparent)
Target: RA 00:00:00.0 Dec 0:00:00.0 (apparent)

Mount is connected
Telescope is not slewing
Telescope is not tracking

Axis 0   Axis 1
enabled  enabled
rms error 0.000000 0.000000 arcsec
dist2target 0.000000 0.000000 arcsec
servo error 0.000000 0.000000 arcsec

-----
Last command: 'mount/goto_alt_az?az_degs=180.000000&alt_degs=80.000000'

```

PW1000

Mount: Connected Az enabled El enabled

Mirror Cover: Connected,

Open Close **Stop** Reset

Az: El: Go

RA: Dec: Go

CHARA No.: Set

HD number: Set

Simbad name: Lookup

Next star: -none- Goto next star

Current:

UTC: 2024-03-09 00:22:13.4374
 Az: 180.000000 deg, El: 45.000000 deg
 RA: 3.614335 h, Dec: -11.223353 deg
 Distance to target: Az 0.00", El 0.00"
 RMS error: Az 0.00", El 0.00"
 Telescope delta: 0.0 Distance to target: 0.00"
 Telescope is NOT slewing / is NOT tracking

Move Telescope:

Az off: 0.0"	Up	El off: 0.0"
Left	Recenter	Right
	Down	Step: <input type="text" value="10"/> "

Show Status Park Telescope **STOP!!!**

? Ping Reopen Quit



The Dome





Dome Control



dome_CMAP

Main | **Status**

Azimuth

Move mode: **Fixed**, Azimuth: 90.1 deg

<< Left << STOP >> Right >>

Home **Park** Goto: 0.0 deg

Shutters

Status: **Closed** **Unlock**

Both: Open Close Vent Stop

Upper: Open Close Stop

Closed 0% open Goto: 0

Lower: Open Close Stop

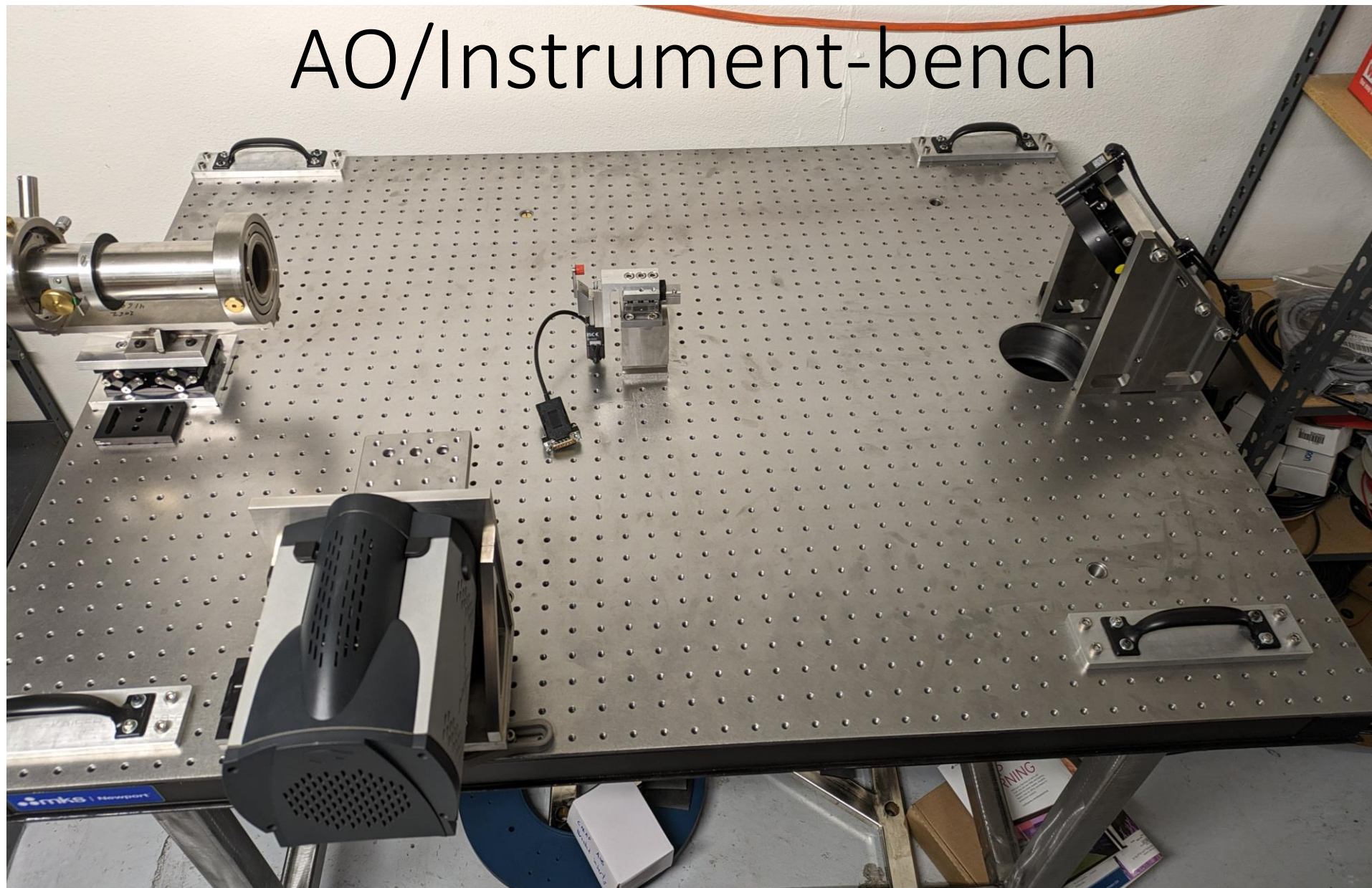
Closed 0% open Goto: 0

Dome CPR = 28970 counts/revolution
!DSgp;ACK

INIT REOPEN PING QUIT



AO/Instrument-bench



AO/Instrument-bench

- All parts have been purchased, but...
- Wavefront Sensor at W1
- Acquisition camera(s) at E1 & ChanCam
- Motors used for fiber-injection at S1/S2

- Good news: all the software-modules exist



Mobile Telescope & CHARA

LOCAL TIME: 14:58
CHARA TIME: 22:58
SIDEREAL TIME: 01:20

JOB QUEUE: 0
START JOB QUEUE
STOP JOB QUEUE
CLEAR JOB QUEUE
PI:
Prog:

CONTROL
STARS
CALIBRATORS
CONFIGURE

NOSTAR	ZENITH		S1	OP1	BEAM5	<input checked="" type="checkbox"/>	S1	GET
INTERNAL	AUTOCOLL		F1	OP2	BEAM4	<input checked="" type="checkbox"/>	S2	
CHARA Number	<input type="text" value="0"/>		F2	OP1	BEAM1	<input checked="" type="checkbox"/>	E1	SEND
HD Number	<input type="text" value="0"/>		F3	OP3	BEAM6	<input checked="" type="checkbox"/>	E2	
Ref Cart	S1		F4	OP3	BEAM3	<input checked="" type="checkbox"/>	W1	
			F5	ND	BEAM2	<input checked="" type="checkbox"/>	W2	
			F6					

Wobblier/Ople logs restarted.
 LOG OPEN: /ctrscrut/chara/data/status_primary_013.txt
 UT YEAR 2024 MONTH 2 DAY 23
 Beam combiner CLASSIC server socket NOT OPEN.
 Beam combiner CLIMB_1 server socket NOT OPEN.
 Beam combiner CLIMB_2 server socket NOT OPEN.
 Beam combiner JOUFLU server socket NOT OPEN.
 Beam combiner MIRCX server socket NOT OPEN.
 Beam combiner MYSTIC server socket NOT OPEN.
 Beam combiner PAVO server socket NOT OPEN.
 Beam combiner SPICA server socket NOT OPEN.
 TIPTILT server socket NOT OPEN.
 LABAO S1 server socket NOT OPEN.
 LABAO S2 server socket NOT OPEN.
 LABAO E1 server socket NOT OPEN.
 LABAO E2 server socket NOT OPEN.
 LABAO W2 server socket NOT OPEN.
 ople: ERROR: Message job with no function (424).

OPT DELAY
HIGH SNR
VERBOSE
LAB TT
REOPEN
PING
END NIGHT
REPORT
QUIT

Next steps

- Install the telescope (Tuesday)
- Test the software
- Debug the software

- Install fibers
- Find fringes



