CHARA Operations and Scheduling

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April 29, 2025 1600

CHARA Operations

2024 Statistics:

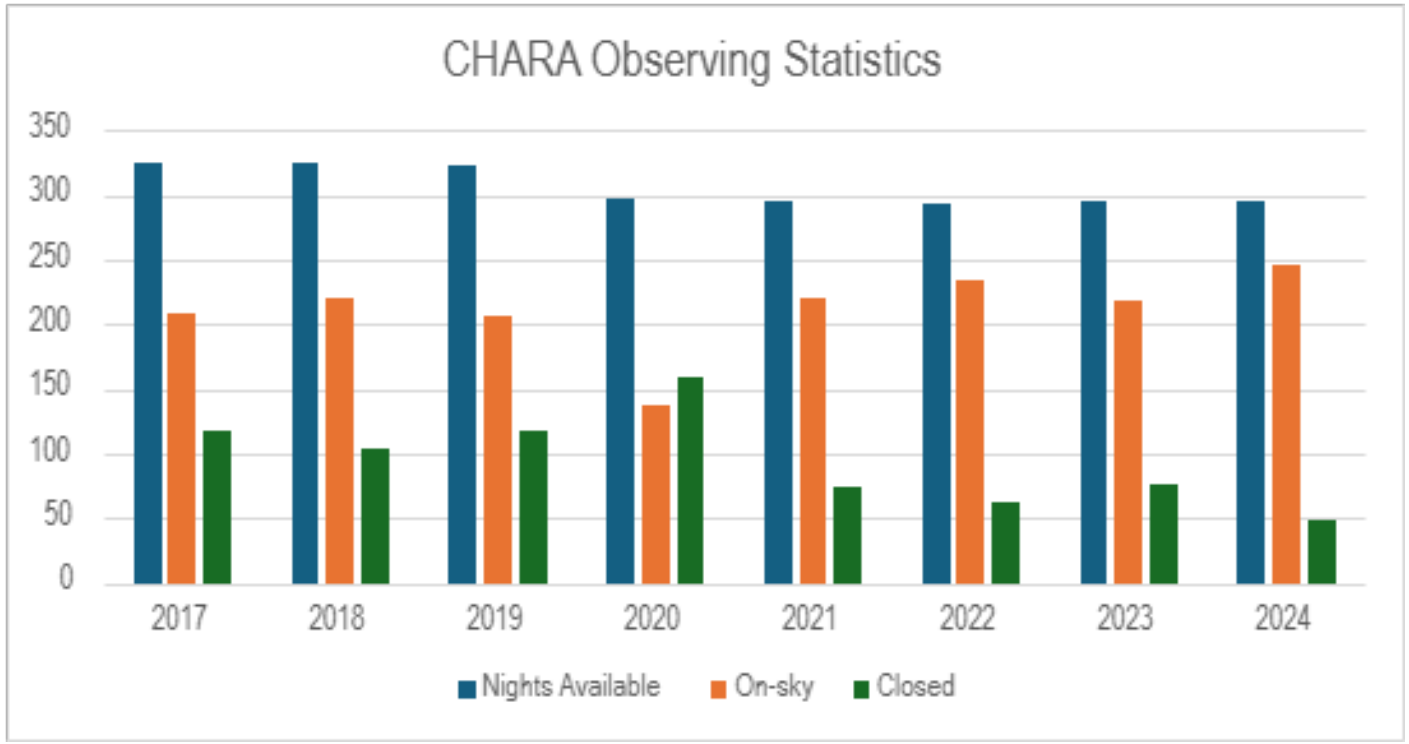
- 295n Available
- 245n Data Collected
- 49n Closed

- Closed By Month:
  - Mar – 15n
  - Apr - 11
  - May - 3
  - June - 0
  - July - 0
  - Aug - 0
  - Sep - 5
  - Oct - 3
  - Nov - 10
  - Dec - 2

- Closed - Reason
  - Humidity/Precipitation – 26
  - Clouds – 2
  - Winds – 3
  - Technical – 4
  - Temperature – 2
  - Seeing – 1
  - Combination – 11

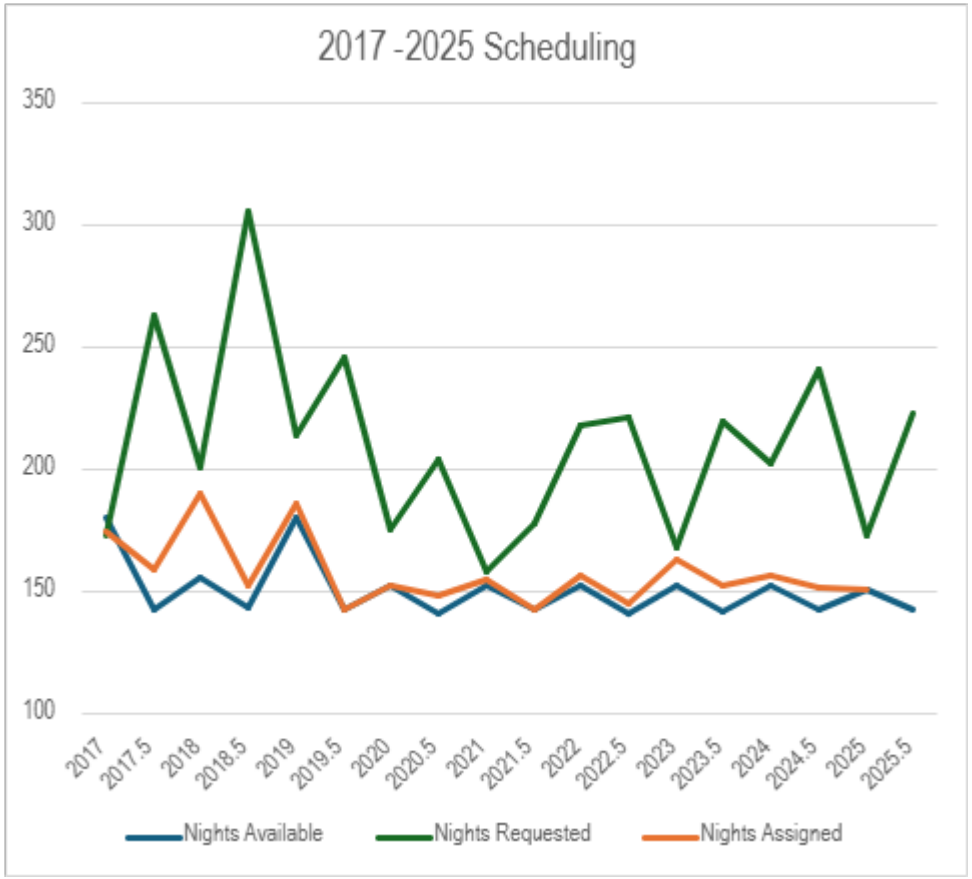
2017-2024 Operations Statistics

Year	Total N	Data	Closed
2017	326	208	118 (36%)
2018	325	221	104 (32%)
2019	324	206	118 (36%)
2020	297	138	159 (53%)
2021	296	221	75 (25%)
2022	293	234	62 (21%)
2023	295	218	77 (26%)
2024	295	246	49 (16%)



2017-2025 Scheduling Statistics

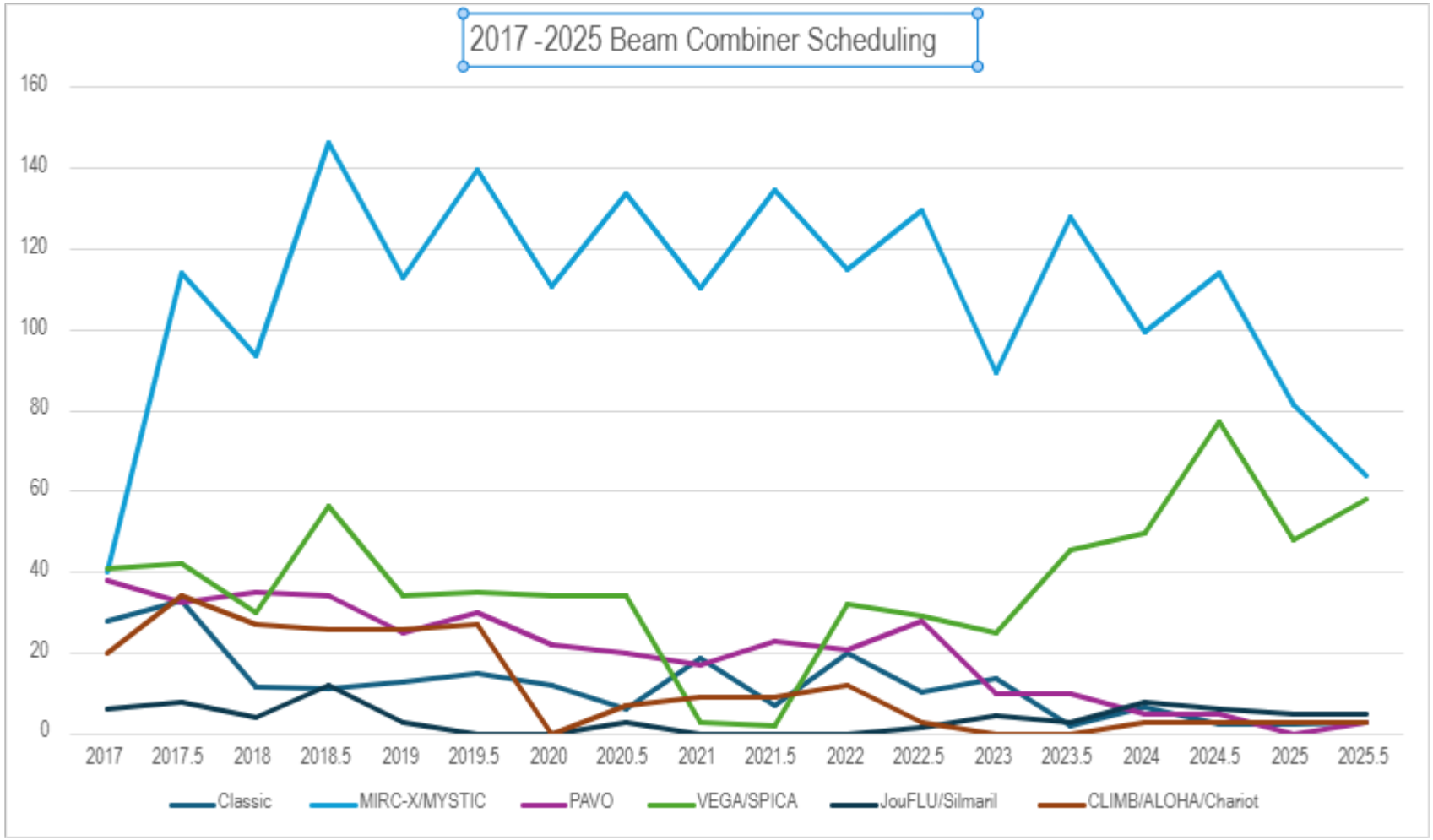
Semester	# Proposals	Available (N)	Requested (N)	Assigned (N)	Oversubscription
2017A	35	181	173	174.5	**-4.4**
2017B	46	143	263.5	159	**84.3**
2018A	41	156	201	190.5	**11**
2018B	48	144	306	152.5	**114**
2019A	39	181	214	186	**18.2**
2019B	44	143	246.5	143	**75.5**
2020A	36	153	176	153	**15**
2020B	40	141	204	149	**44.7**
2021A	36	153	158.5	155	**3.6**
2021B	40	143	178.5	143	**24.8**
2022A	11	153	218	156.5	**42.5**
2022B	48	141	221.5	145	**57.1**
2023A	38	153	168	163.5	**9.8**
2023B	50	142	220	152.5	**54.9**
2024A	40	153	202.5	156.5	**32.5**
2024B	55	143	241	152	**69.7**
2025A	48	151	173	151	**14.6**
2025B	57	143	223	0	**55.9**



2017-2025 Scheduling Statistics

Semester	Classic (N)	Engineering(N)	MIRC-X/MYSTIC (N)	PAVO (N)	VEGA/SPICA (N)	JouFLU/Silmaril (N)	CLIMB/ALOHA/Chariot (N)	NOIRLab (N)
2017A	28	15	40	38	41	6	20	10
2017B	33	0	114	32.5	42	8	34	15
2018A	11.5	5	93.5	35	30	4	27	25
2018B	11	35	146.5	34	56.5	12	26	25
2019A	13	0	113	25	34	3	26	25
2019B	15	22	139.5	30	35	0	27	30
2020A	12	21	111	22	34	0	0	30
2020B	6	28	134	20	34	3	7	30
2021A	18.5	25	110.5	17	3	0	9	30
2021B	7	28	134.5	23	2	0	9	30
2022A	20	47	115	21	32	0	12	40
2022B	10.5	24.5	129.5	28	29	1.5	3	40
2023A	13.5	30	89.5	10	25	4.5	0	45
2023B	2	22	128	10	45.5	3	0	45
2024A	6.5	42	99.5	5	49.5	8	3	45
2024B	2.5	44	114	5	77.5	6	3	50
2025A	2.5	35	81.5	0	48	5	3	50
2025B	3	42.5	64	3	58	5	3	50

2017-2025 Scheduling Statistics



2025A and B statistics

2025A Season

- 151 total nights
- 173 requested
- 14.5% oversubscribed
- By Beam Combiner:
  - Classic – 2.5n (r), 2.5n (a)
  - Engineering – 35n (r), 28n (a)
  - MIRC-X – 81.5n (r), 80n (a)
  - SPICA – 71.5n (r), 50n (a)

2025B Season (internal)

- 143 total nights
- 165.5 requested + 50 NOIRLab reserved
  - 215.5 total
- 51.8% Oversubscription
- By Beam Combiner:
  - Engineering – 42.5n
  - MIRC-X – 64n
  - SPICA – 58n

How to plan an observing run…

Necessary with all the changes and new faces

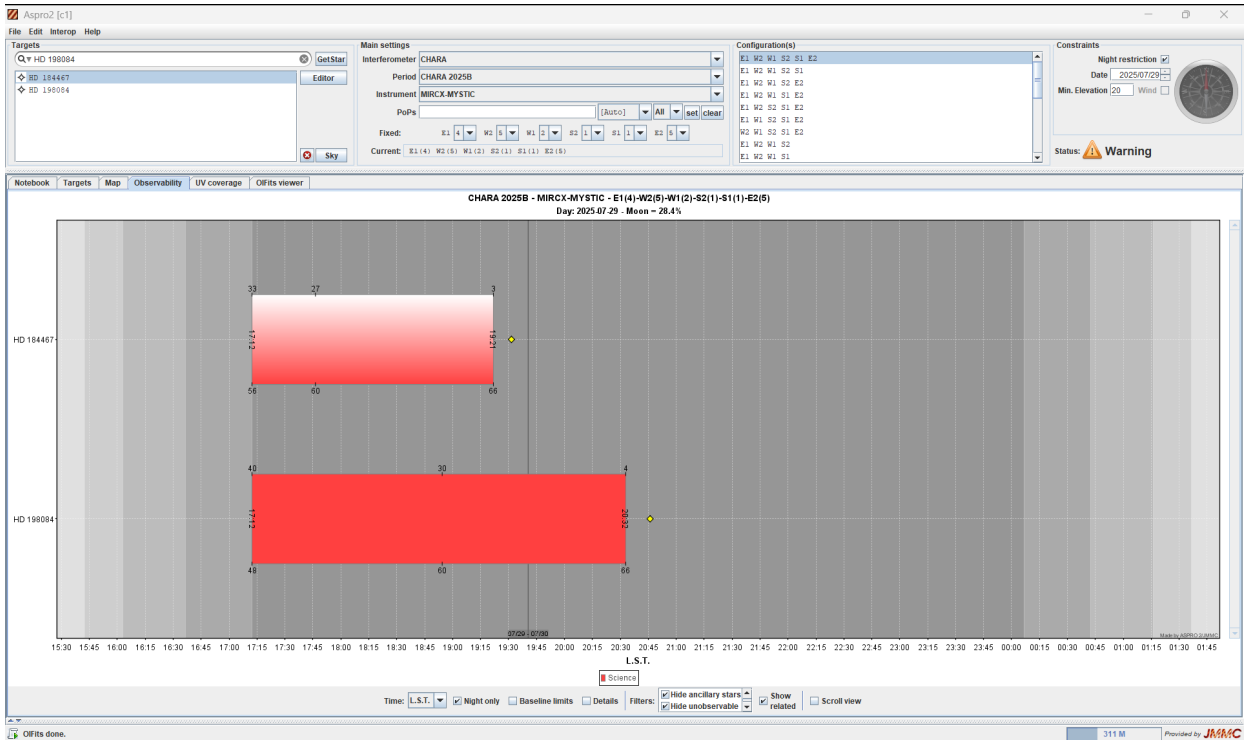
Planning a run on the Array is different than a single telescope.

A LOT more to consider and account for before and during observing.

Writing a proposal – please take advantage of the “Unacceptable Observing Dates (for non astronomical reasons” field in the proposal form

Where do we begin? You’ve put in a proposal, awarded time, and have a list of targets.

If you have a problem with time awarded, please let me know BEFORE the season starts.



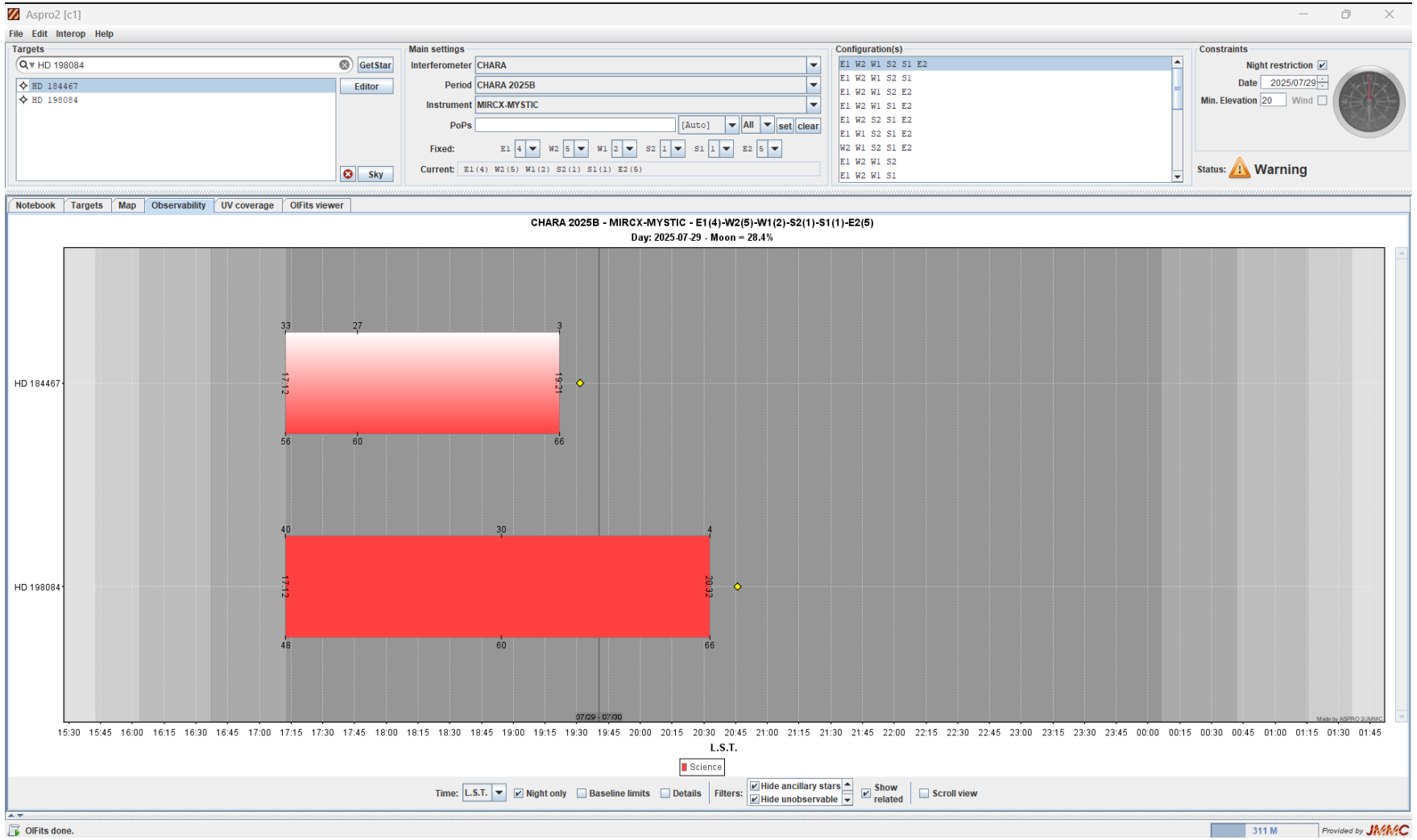
Interferometer Planning Software

Aspro:
https://www.jmmc.fr/english/tools/proposal-preparation/aspro

Very useful tool to overall plan an observing run with CHARA/VLTI/SUSI/NPOI

Has some limitations:

- Delay timings
- Choosing the correct fixed delay increments (PoPs)
- 1-dimensional limitations visually



CHARA Plan 2

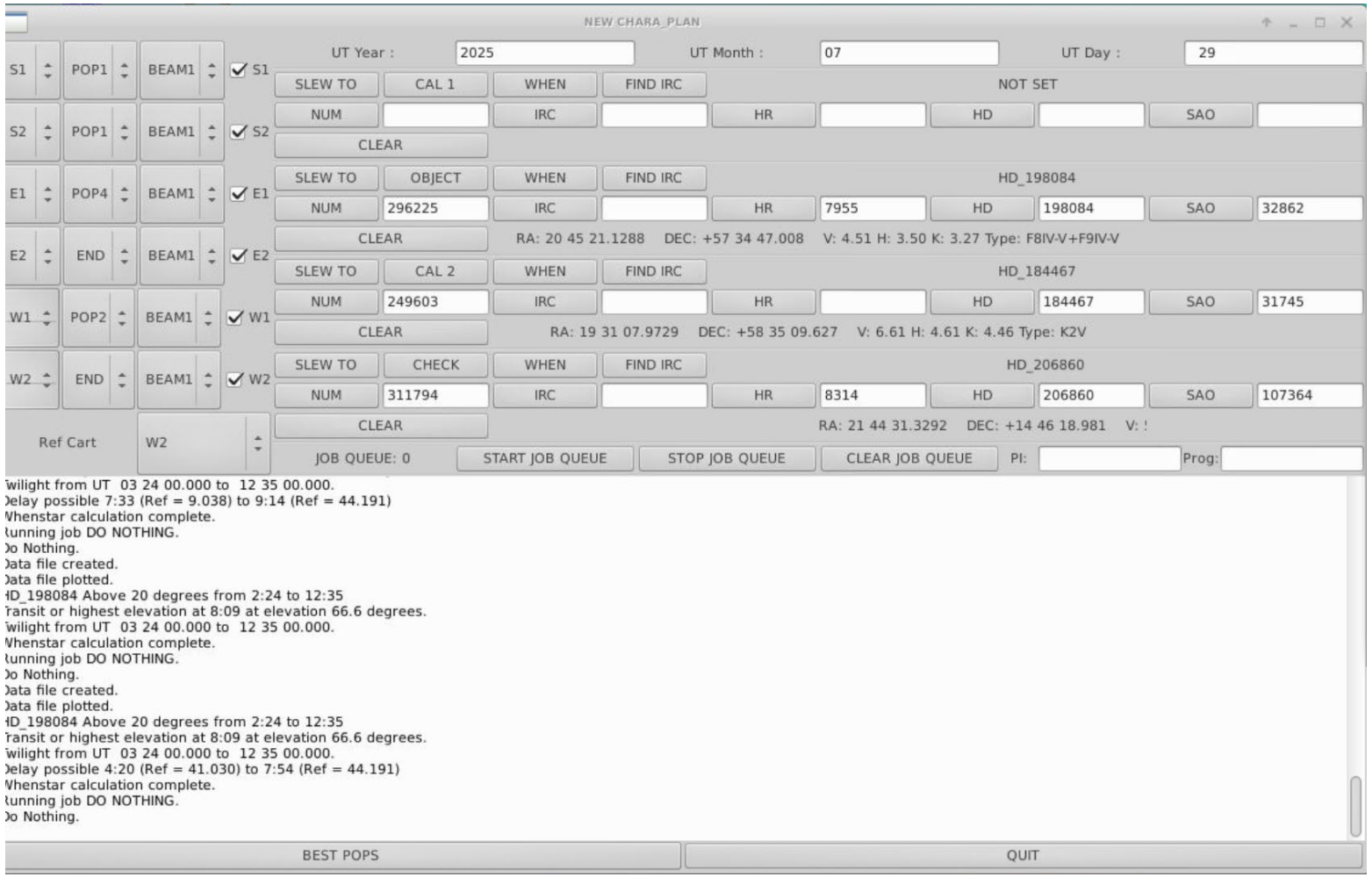
Internal software built into the CHARA Array using the same structure as the OPLE control.

Available on the Atlanta VNC servers or at any computer at the Array.

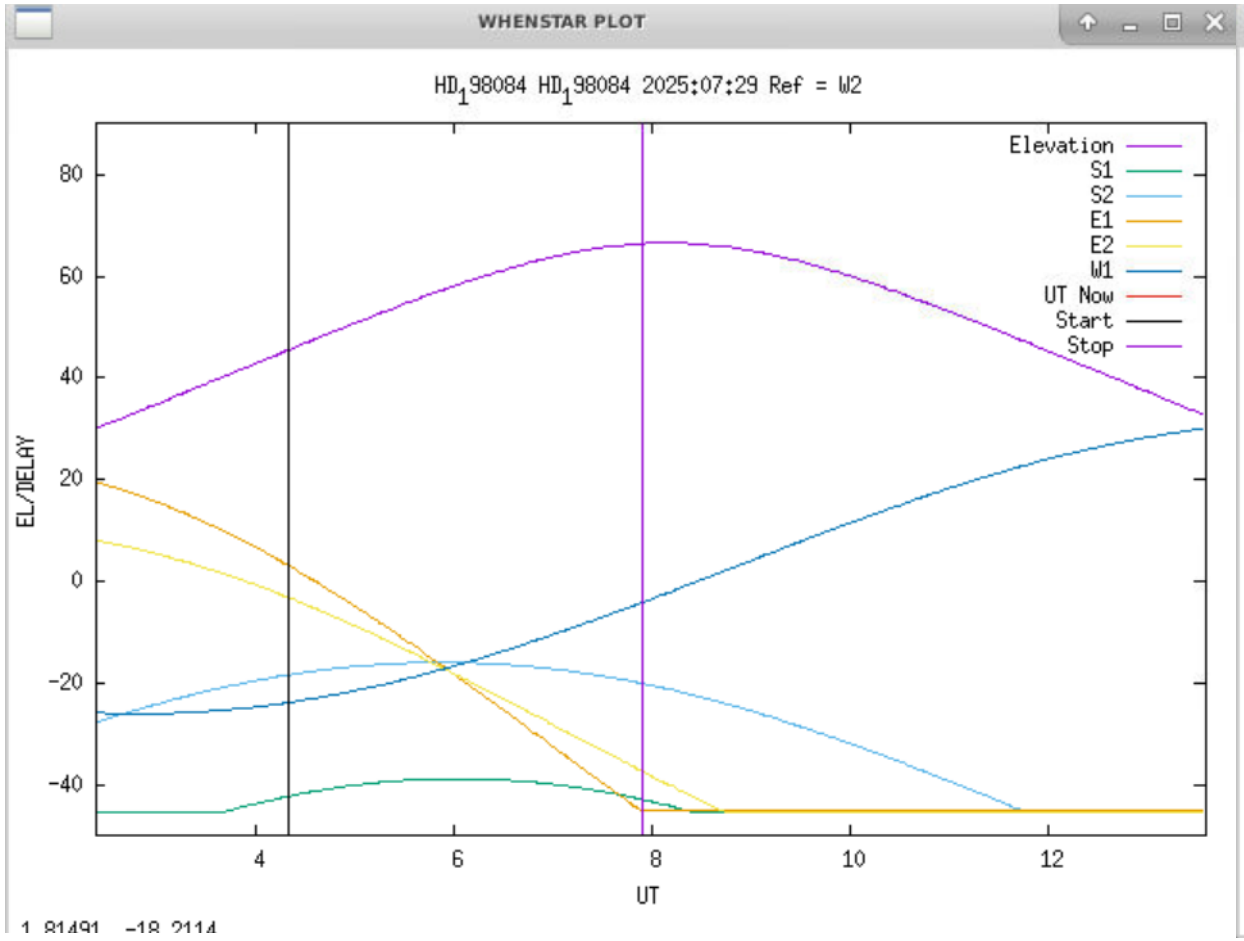
Command: chara_plan2

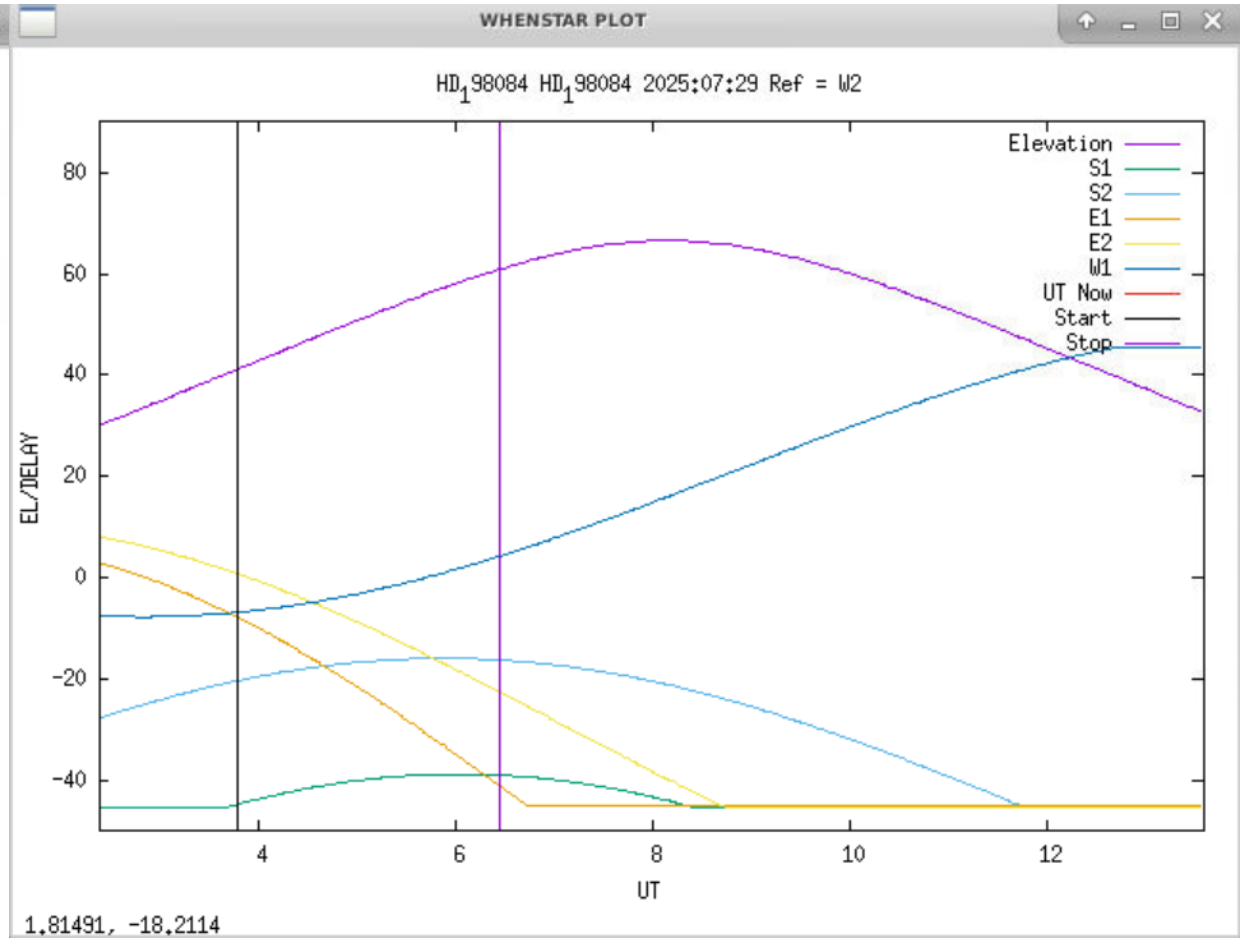
Initially hard to understand what it shows you.

Feel free to contact me if you struggle or have questions



CHARA Plan Display





CHARA Observing Protocol

- Before your run:
  - RTFM for your beam combiner
    - We have links on the CHARA wiki for each combiner.
  - Check your calibrators - <0.5mas is suggested, single unresolved stars with similar magnitudes to the object +/-1 mag in the appropriate waveband, preferably not flare, RSCvn, pulsing, no-IR excess, etc. Plain boring stars work best.
    - Check the distance of cals from your object and which direction (RA/Dec) they are oriented.
    - This is especially important for when following a star for a significant portion of the night
- At least 3 days in advance, please send your setup and beam order through the online form
  - For Classic/PAVO/non-6T runs, please list all beam orders you will want to use during the night, this is important
- Send any changes to an already submitted setup request ASAP before the run starts so that adjustments can be taken into account.
- Check in with the staff the day before for any last-minute Array changes (tech problems with scopes, things out of service, etc) or to ask any questions.
- Remember, only the operators are on-hand during the weekend, and to clear up any problems before the weekend starts
- Show up early on the first night of your run

CHARA Observing Protocol

- The first night of your run:
  - Show up at least an hour before sunset
  - Connect with the operator to check to see if everything is setup properly, lab aligned, etc.
  - Leave enough time to take STS data or any special setup, confirm spectral resolution, alternate beam order…
  - If you are going to be late in arrival (online or in-person, let the operator know so that they can get everything ready, and even pointed at the first star while you are catching up
  - Please think ahead. Give the operator the info for at least one, preferably two stars in advance
  - Nearing the end of a data sequence, let the operator know where you are going next:
    - "At the end of the shutter sequence, we will next go to Obj/cal/check"
- If there are problems, have patience, the array is complicated and there are many things to adjust/check.
- If you have a problem with an instrument (rather than the array itself), and you do not know how to fix it, please ask someone before attempting to fix yourself.
- If the operators tell you the weather is bad and we need to close at the end of the data file, or immediately, please do not argue with them.
- If you want weather conditions, use the bot-spam discord channel rather than the operations channel
- MIRC specific – Do not change the configuration without having light from the previous night's setup visible.
- SPICA specific – When its time for a pop change, please ensure the STS Vis is out, and periscope is up for the operators

What to expect from Operators

- What Operators will do:
  - Setup the lab and array
  - Align the AO systems
  - Slew the telescopes
  - Monitor the weather
  - Move the carts and monitor the OPLE system
  - Change pops when needed
  - Fix Array specific problems
  - Communicate with the PIs and facilitate the night of observing
- What Operators do NOT do:
  - Read instrument manuals and troubleshoot instrument problems
  - Aligning instruments (aside from Classic)
  - Change beam order in the middle of the night if a scope is removed from config
  - Keep track of offsets

Helpful Links

Tips and Tricks for MIRC-X/MYSTIC Observing:

https://chara.gsu.edu/wiki/doku.php?id=chara:helpful_tips_for_mirc-x:mystic_observing

CHARA Wiki for observing manuals:

https://chara.gsu.edu/wiki/doku.php?id=chara:instruments

ASPRO:

https://www.jmmc.fr/english/tools/proposal-preparation/aspro

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