

**20190708**

## **CESAR Observations**

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CHARA: Chris

- AO Engineering studies first
- Telemetry S2 CLOSE LOOP memory0.95 Gain 0.25 Exp 2ms File002
- Telemetry OPEN LOOP File003
- Telemetry CLOSE LOOP Damping=0 Gain 0.25 File004
- Telemetry OPEN LOOP File005
- Telemetry CLOSE LOOP Damping=0 Gain 0.35 File006
- OPEN LOOP File007
- Gain 0.25 Damping=0 Exp 4ms CLOSE LOOP File008
- OPEN LOOP File009
- Memory=1 Gain 0.25 Damping 0 2ms CLOSE LOOP File010
- OPEN LOOP File011
- CESAR Tests. It was necessary to realign the system in the lab as the injection was lost. The fiber explorer algorithm is working fine now. Injection around  $0.2 \times 1.6 = 0.32$  on the internal white source.
- Realignment of the AO to improve the CHARA/CESAR alignment.
- M6 initial 0/-1280. Adjustment to have the star on the expected position M6 final -480/-320
- LABAO was just in FLAT configuration as it is contaminated by the star light ( $mV=2.81$ ). We go on a fainter star (HD173648,  $mV=4.36$ ) to use the LABAO with the Beacon and the TELAO on the star. But the problem is that with the BARE glass in the telescope we have too much star light in the LABAO. So we switch back to the VISIBLE Glass (Grey one).
- (Discussion with Chris: with the GRAY dichroic, stars fainter than 4 contaminate the LABAO and the Blue beacon contaminates the TelWFS for stars fainter than 7. So the blue beacon should maybe be replaced by a monochromatic laser with a notch filter in the LABAO rejecting all the star light and a filter blocking the monochromatic laser for the Telescope WFS).
- Flux on CESAR is quite small...
- Even with the GRAY glass there is still light on the LABAO for the 4.36 magnitude star. HD175286. Vmag 5.36. LABAO and TELAO in close loop.
- No spectral filters on CESAR. GainTT=0.1, LeakTT=0.99, DIT=5ms, GAIN=1000. Files080842 to 084329. LABAO in FLAT, TELAO closed on HD175286. We see the beacon in CESAR around magnitude 5 (when we are without the filters).
- New telemetry with TELAO and LABAO (beacon): File012.
- Both loops OPEN: File013
- DARK CESAR 090313.
- r0 was around 5 to 8 cm

## **VEGA observations**

- 07h00 we go to VEGA observations now, V52 Nardetto E1P1B1-E2P2B2-W2P5B3

- First LABAO star HD202109 for alignment. Target for fringes. E1=-580, E2=-3800. BC1=6.62, BC2=5.38
- Cal1 now. [HD190993.2019.07.08.07.48](#). Very rapidly 3 peaks on VEGA. Nice tracking by CLIMB. r0=12cm. Around block 11 we lost E1 cart. REF position was not set correctly. So the first part is ok. New recording now with [HD190993.2019.07.08.07.56](#). Same thing: nice fringes on VEGA and good tracking by CLIMB.
- Target. [HD198726.2019.07.08.08.11](#). Good tracking for CLIMB. Fringes rapidly seen on VEGA. r0 between 12 and 13cm now.
- Cal2 now [HD196740.2019.07.08.08.23](#). r0=11cm. Nice fringes on VEGA and good tracking.
- Target. [HD198726.2019.07.08.08.35](#). r0=12cm. everything is ok.
- Cal1 again now. [HD190993.2019.07.08.08.52](#). Nice fringes everywhere. r0=12cm.
- Target. [HD198726.2019.07.08.09.07](#). r0 closer to 9cm now.
- Cal1 but issue with POPs... W2 was set on P4. So we change to get the correct delays. [HD190993.2019.07.08.09.26](#). r0 around 11cm. fringes are jumping a little bit now. But fringes are ok finally.
- Target [HD198726.2019.07.08.09.44](#). Some difficulties to get the fringes. NIRO Alignment. But tracking ok. r0=10cm now. E2W2 fringes are fainter than before.
- Cal2 now [HD196740.2019.07.08.09.57](#). Nice fringes again. r0=8cm.
- Target [HD198726.2019.07.08.10.08](#). r0=9cm (strange variations). Fringes ok. Again E2W2 much fainter on VEGA than at the beginning.
- **New prog V67 E2W2**
- Calibrator HD187235. E2=-3200. Fringes very faint on VEGA. Not sure how it will be calibrated. [HD187235.2019.07.08.10.31](#). Fringes are ok on CLIMB, well tracked but faint on VEGA.
- Target1 HD182694. [HD182694.2019.07.08.10.44](#). Nice fringes well tracked on CLIMB. Flux is low on VEGA. And fringes are visibly faint as expected. r0 variable 7-8 cm.... depend on the brightness of the star in fact!
- New calibrator HD184875 but this one is binary. We try HD184171 (given by Orlagh). [HD184171.2019.07.08.11.10](#).
- Target2 HD185955. [HD185955.2019.07.08.11.22](#). Nice fringes on CLIMB. Probably very faint on VEGA. r0 now close to 6cm. It's much colder outside. I get a peak after 15 blocks. Clearly very low visibility.
- Back to the cal. [HD184171.2019.07.08.11.34](#). Fringes ok on CLIMB and VEGA. r0 around 8 cm now.
- Target2 HD185955. [HD185955.2019.07.08.11.46](#). Nice fringes on CLIMB with a very good tracking. 32 blocs for this one.
- [D\\_CMR720.2019.07.08.12.02](#).