# UT2018-10-19 VEGA observations. Isabelle, Denis, Michel & Olli

UT1h40: arrival in the control room. We start with telescope E1 for CESAR and with the two WFS. Theo demonstrates the complete alignment procedure:

1. normal Lab alignment up to M10 (the reference beam hits the centre of M7)
2. Coudé alignment by rotating the telescope and looking at the motion of the reference beam over a stroke of 180°. With the M7 we adjust the final spot at the middle position. The track back of 180° demonstrates that the spot is no longer moving.
3. Centre the red beacon on the TelWFS by moving the beacon.
4. Centre the blue beacon on the LabWFS with the dichroic
5. Focus the blue beacon on the LabWFS directly on the beacon
6. Focus the red beacon on the TelWFS with th big parabola
7. Here we have the beacon and the reference beam coaligned.
8. Measure then compute the reconstructor

We notice a lot of drift in tip/tilt on both WFS after the opening of the dome.
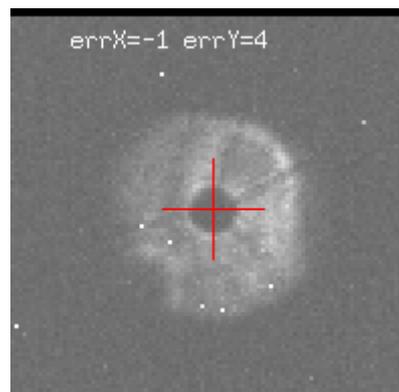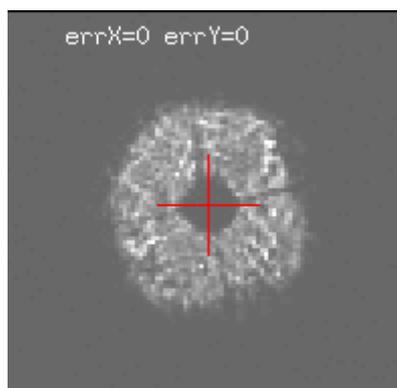
Left: E1 pupil on star with LABAO & WFSTT. Right E1 pupil illuminated by the blue beacon
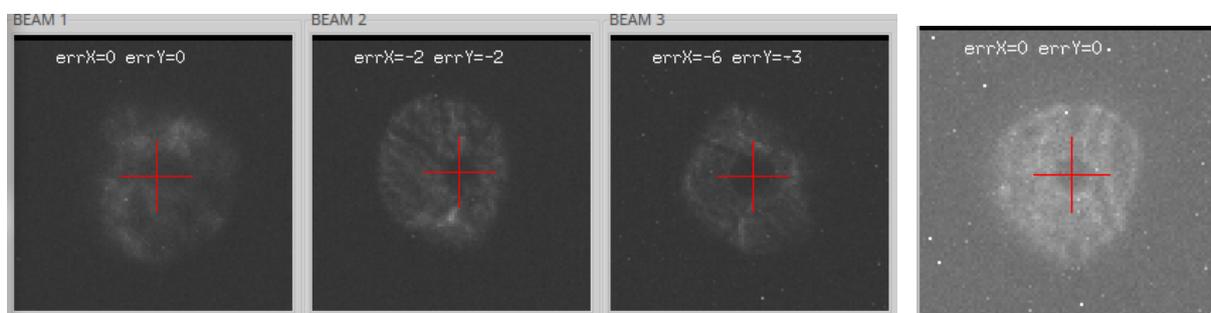
S2, W2, W1 Pupils recorded on October 17th + W2 pupil illuminated by the blue beacon.

CESAR Measurements

1. LABAO 100Hz gain 1.5, gain 0.5 CESAR
   a. (Old algo, New Algo)x(Proportionnel,Integral, Goldfish)
   b. 1 openloop CESAR
   c. 1 openloop CESAR et LABAO
   d. First data (25.41) corresponds to telemetry004
2. LABAO 200Hz gain 1, gain 0.5 CESAR
   a. 5 openloop CESAR et close loop LABAO
   b. (Old algo, New Algo)x(Proportionnel,Integral, Goldfish)
   c. Dataset 40.03 corresponds to telemetry017
3. LABAO 200Hz gain 1, gain 0.2 CESAR
   a. (Old algo, New Algo)x(Proportionnel,Integral, Goldfish)
   b. dataset 47.47 corresponds to telemetry028

V67 E1POP1B1-E2POP2B2 *Cons OPD +150µm*

Check star is HD176437, Cal is HD174481 for 3 targets (HD175740, HD181597, HD175884)

UT4h00: HD176437 as LABAO and check star for alignment. r0 around 5-6cm. Fringes ok on CLIMB and already cophased. Offset -1800. BC1=3.25, BC2=1.22
UT5h00: Cal HD174881. r0 around 5cm. Fringes do not look great on CLIMB. 40 blocks. **HD174881.2018.10.19.05.02**. Even after 20 blocks the fringes are barely seen on VEGA. Really poor tracking by CLIMB.
UT05h25: target HD175740. Better fringes on CLIMB offset= -2040. **HD175740.2018.10.19.05.27**. Fringes ok but probably not of good quality.
UT05h37: calibrator again. **HD174881.2018.10.19.05.40**. r0 still around 5cm but really bad fringes. The conditions are really poor and we decide to stop the science programs.
UT05h59. Spectral calibration. **D_CMR720.2018.10.19.06.07**.

## E2POP2B2-W2POP2B3 *Cons OPD +150µm*

UT06h00: HD16582 on E2W2 for cophasing and preparation of the last nights. r0 always around 5cm. Fringes found on CLIMB around -6.4. Still 5cm for r0. No fringes on VEGA. We try HD3360. Found at -5.4 but nothing on VEGA.
UT08h20: we go to gam Cas: Climb Offset -5.4. And finally we got them on VEGA. After cophasing, Offset -2.4, BC1=3.19, BC2=4.37. Fringes really poor both on VEGA and CLIMB, r0 around 5cm

W1POP1B2-W2POP5B3 *Cons OPD +150µm*

UT08h50: same star for preparing the cophasing again. Offset=1.970, BC1=3.19, BC2=3.77. Conditions are really limits. We go to standby.

V66 W1POP1B2-W2POP5B3 Cons OPD +150µm
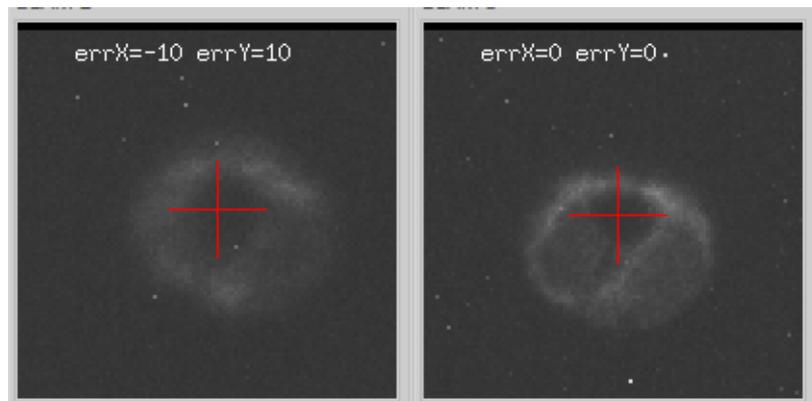
W1-W2 Pupils (Pop1-Pop5) on star (AZ=167, AL=48)….

UT11h15: We decide to try again the V66 program. HD41335. Offset +2550. Blind recording (differential measurements) of 40 blocks. **HD41335.2018.10.19.11.34**. Really poor tracking by CLIMB with r0 always around 5cm.

UT12h02: HD45725. This star is a close binary on which it is hard to lock. We go to Rigel for aligning correctly CLIMB. Finally it appears that this star is feasible. We should track on the brightest one, which is on the left. Offset found at 1440. **HD45725.2018.10.19.12.06**. We see the fringes on VEGA despite the terrible seeing. r0 around 4cm.

UT12h52: Spectral calibration. **D_CMR656.2018.10.19.12.54**.