

## Parallel operation of CLIMB with VEGA

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### GENERAL VERY IMPORTANT CONSIDERATIONS

- Limiting magnitude of CLIMB is magK=6.5
- Use SearchCal in “V detailed mode” to find the correct calibrators according to these limits.
- A bright K target (magK<4) at the beginning of the night is better for a good NIRO alignment.
- Set the number of data scan in CLIMB to a large value so that long integrations on VEGA are possible. “sds 2000” in the CLIMB server window.
- CLIMB should not be set with direct communication to the VME racks otherwise the offsets VEGA and CLIMB will not be comparable. CLIMB should use the standard communication to OPLE.

*The instructions in italic are done by the CHARA night observer*

### HOW TO FIND A GOOD CHECK STAR FOR COPHASING VEGA AND CLIMB

The best procedure at my knowledge is to use a specific request on the JSDC catalog on VizieR

- <http://vizier.u-strasbg.fr/viz-bin/VizieR?-source=II/300>
- In the **Target Name** field, enter either a standard name of a star close to the region where you want to point (not necessarily close to your first target) or ( $\alpha,\delta$ ) coordinates like “10:00:00 +10:00:00”
- In the **Vmag** and **Kmag** fields, enter “<4.5”
- In the **LDD** field, enter for example “<0.5”
- This will give you a list of stars that will be good check stars.

### PRELIMINARY SETTINGS

1. *Standard alignment in the Lab + LDC (Longitudinal Dispersion Compensator) in place.*
2. CLIMB is working on **beams 1-2-3** with usually beam 2 as reference for parallel operations with VEGA. In other cases, CLIMB prefers to use beam 3 as reference. Check that the StarList configuration is in agreement with that setting.
3. *The use of the LDC is simple. In the opleserver windows, the following commands have to be entered “**useldc on**” and “**autoldc on**”. Correct values for the glass position are between -10 and +49. In some case the ideal correction of atmospheric dispersion is not possible and you should do with that. This is especially true for W1 due to its large difference of altitude. If possible adjust the REF position to optimize both the observability and a good configuration of the LDCs.*
4. *Cosmic Debris is configured for CLIMB.*
5. Start the CLIMB GUI: “climbgtk” on pc-ctrlvega2
6. Start the BC1 GUI: “espgtk BC1” on pc-ctrlvega2 and check that the button CLIMB\_B1 and CLIMB\_B2 are in the green position. Set the step value to 0.1mm
7. *When done, CLIMB takes the lead and first performs the NIRO alignment. It’s important to do that after the VEGA alignment (pupils and tip/tilt)*

## COPHASING PROCEDURE

1. Use a bright and unresolved target... yes it's possible! You can use a search with JSDC on VIZIER for example to find check stars.
2. *If fringe offsets are almost known, use **RECORD THREE BEAMS** or **RECORD TWO BEAMS** button of Cosmic Debris. Otherwise use the **SCAN FOR FRINGES** first.*
3. Lock fringes on CLIMB first and note the offsets.
4. Unlock fringes on CLIMB and **center the VEGA fringes at their expected positions (see ConsOPD in the previous paragraph and check carefully in the tracker GUI who is Fringe1 and who is Fringe2. Fringe1 should be on the left (usually beams 12), and Fringe 2 should be on the right (usually beams 23)).** Use the shutters first to separate fringes 12 and fringes 23 and send offsets via the VEGA PRIMARY TRACKER. Note the Vega offsets when done.
5. Using the VEGA tracker GUI, send the CLIMB Offsets to center again the fringes on CLIMB. Lock them. Now the operation would be to change CLIMB\_B1 and CLIMB\_B2 mirror's position so that change the CLIMB internal offset and get the same fringe offsets as VEGA. Use the following procedure:
6. **IF B2 = REFERENCE BEAM**
  - a. To reduce the Climb offset on 23, increase the position of CLIMB\_B1 **and** CLIMB\_B2 on BC1 by steps of 0.1 (100 $\mu$ m): Fringes 12 should not move, center again fringes 23 using **POSB - -** (or **<<** in 2T mode). After selecting **LARGE** 2 clicks = 100  $\mu$ m.
  - b. To reduce the Climb offset on 12, reduce CLIMB\_B1 and click on **POSA - -**. After selecting **LARGE** 2 clicks = 100  $\mu$ m.
7. **IF B3 = REFERENCE BEAM**
  - a. To reduce the Climb offset on 23, decrease the position of CLIMB\_B2 on BC1 by steps of 0.1 (100 $\mu$ m) and center fringes again with **POSB - -** (or **<<** in 2T mode). After selecting **LARGE** 2 clicks = 100  $\mu$ m.
  - b. To reduce the Climb offset on 12, reduce CLIMB\_B1 and click on **POSA - -**. After selecting **LARGE** 2 clicks = 100  $\mu$ m.
8. Finally fringes should be locked on CLIMB and correctly at their position on VEGA

## FRINGE AND DATA ACQUISITION

1. As soon as fringes are found by CLIMB and correctly centered, click on "Save" on the CLIMB GUI so that the first shutter sequence starts.
2. As soon as the fringes are locked again after the shutter sequence (2-3mn), start recording on VEGA.
3. When data acquisition on VEGA is completed, click on "Stop" on the CLIMB GUI so that the final shutter sequence starts.
4. When the CLIMB shutter sequence is done (2-3mn), you can slew to the next target.

Note that 10 mn are required between the end of one VEGA acquisition and the beginning of the next one.