VEGA observations

- V72 Klement Imaging bet CMi disk. The goal was to complete the UV coverage
  - 2xS1S2 (HA<0), 3xE1E2 (HA>0), 3xW1W2 (AH>0). Halpha MR.
  - No HR, No 3T S2E2W2
- V67 Creevey/White CHARA and Tess survey completion
  - HD27371: P0: 3+2 S1S2
  - HD27697: P1: 2+2 S1S2
  - HD89221: P2: 3xE2W2, no P3
  - P4/P5: no
- V38 Salsi Early-type SBCR
  - P0 HD149438 (end of night and low elevation): 3xE1E2W2 but difficult
  - P1 HD11415 (nothing, too late, low elevation ==> October)
  - P1 HD58142: 3xE1E2W2
  - P2: HD114330: 4xE1E2W2
  - P2: HD145389: 3xS2E2W2
  - P2: HD152107: 3xE1E2W2
- V01/NOAO Ligi Exoplanet host stars
  - P0 HD97658: 4xS1W2
  - P1 HD97658: 2xE2S2
- So overall a good run despite 3 nights over 7 lost because of bad conditions (wind, fog, humidity). The quality of some of the data points has to be checked (clouds and contrails, poor tracking, low elevation).

Operations with the full AO

- The first main outcome is that, when running, the AO greatly changes the situation:
  - it's now very sensitive to align the star on the VEGA slit
  - the flux is much more stable
  - with some care, all pupils (except W1) were very nice and stable, at least at the level of 2% in diameter which is the sensitivity of the VEGA Pupil Viewer during a sequence of brackets (cal/target/cal….)
  - the CLIMB waterfall is really impressive when the AO (see report here) is running and we got strong signal on VEGA also.
- Concerning the alignment sequence with the Gray glass we can confirm some of the recent findings:
  - magnitude brighter than 4: contamination of LABAO-WFS
  - magnitude 7.7: we did not notice any contamination of the TelWFS by the beacon.
  - When possible (magnitude fainter than 4) the beacon tracking is really efficient. In some cases (but hard to say exactly what happened, except maybe motion close to meridian or slight contamination by the star) the beacon tracking during the slew generates misalignment of pupils at the level of 15% of the pupil diameter.
  - TelTT works at least as well as the classical labTT. We did not manage to test the TT correction on the DM itself (corrections are sent to the M2) but probably worth trying in the future.
- Overhead due to AO/Alignment setting.
  - Before AO, the typical overhead (duration between an End of Record and a new Start of record) was of the order of 5mn for VEGA+CHARA.
  - For this first full AO operation, it was more of the order of 10mn (between 7 to 20mn). This is dominated by the alignment and not by locking the loops themselves. The beacon tracking during the record helps a lot in reducing this, except when things went bad and misalignments appear. For bright stars, it's clear that it takes longer to switch between stars.
- Future possibility?

    - Is a dichroic reflecting the full band below 550-600 nm to the TelWFS compatible with the operation of the blue beacon? Is it enough for feeding the telWFS up to magnitude 8-9-10? It should of course send everything above 600 to the lab…
    - Could we use the star on the LAB-WFS to track the alignment with a control of the illumination of the different boxes?
    - Could we consider using the future SPICA pupil viewer to do the beacon's job on bright (or even faint) sources?
- Last but not least
    - Without r0 estimation it is hard to progress in the diagnosis of the AO behaviour. The impression we had is that, for example, the behaviour of CLIMB is no longer directly linearly related to r0 but we have more a two-state regime: good to very good, and really bad.
    - as discussed during the run, for remote observers, a minimum display of the status of TT & AO is critical and the low-frequency display of WFS is important for diagnosis purpose.