Getting the most out of your observing time

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Congratulations

ESO observing time was allocated

to your programme !!

Your goal

■ Obtain data as soon as possible

■ Obtain all the data

■ Obtain highest quality data

Your next step (PHASE2)

■ Select the right STRATEGY and carefully PREPARE / PLAN your observations

Checklist:

■ Do I need special calibrations? → check the standard calibration plan

■ Select best instrument set-up (→ User Manual/Template manual) and exposure times for your science (Phase1 is binding)

■ Re-Calculate exposure times with ETCs, check the S/N

■ ESO service mode rules → Check if you need to submit a waiver (e.g. >1hr OB)

■ Check Phase2 instrument specific webpages
http://www.eso.org/sci/observing/phase2/SMGuidelines.html

Your next step (PHASE2)

■ Select the right STRATEGY and carefully PREPARE / PLAN your observations

ESO observation preparation tools
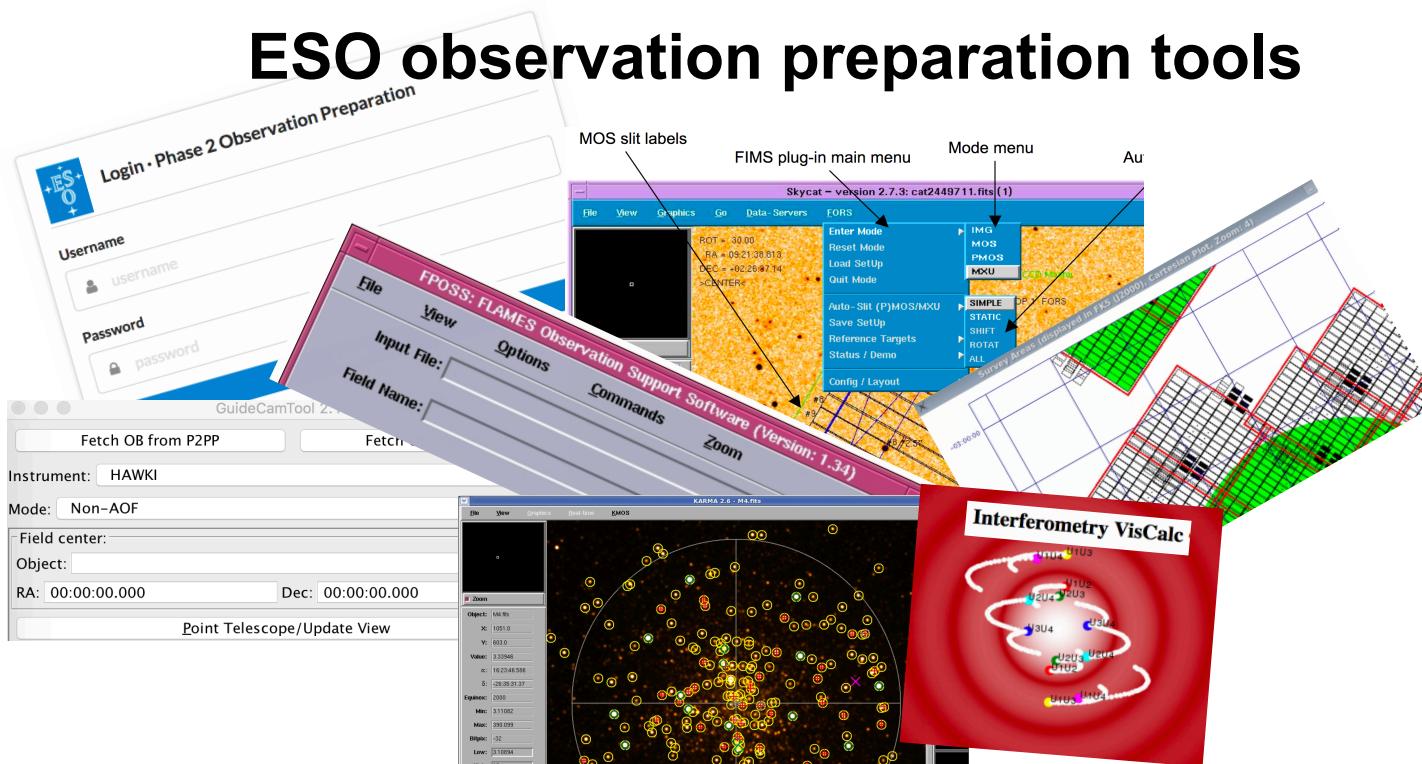
General Strategies

What is your programme's ranking?

■ Rank class (i.e. priority) of your programme (in SM)

➢ **Rank A - High Priority:** These programmes are considered to have the highest scientific value and are executed first as observing conditions allow. ESO makes <u>every possible effort to complete programmes in this Group.</u>

➢ **Rank B - Medium Priority:** Programmes in this group have lower scientific priority than Group A and are executed only when no Group A programme can be executed. ESO tries to complete all programmes in this Group, but <u>incomplete programmes are terminated at the end of the allocated semester</u>

➢ **Rank C - Low Priority:** These programmes have lower scientific priority than those in Groups A and B – <u>any weather programmes</u>

General Strategies

■ Rank class <-> Observation block (OB) constraints

➢ OB constraints: Airmass, Sky transparency, Lunar illumination, Moon Angular distance, Image quality

➢ Probability of realization → OB constraints

OB preparation tool p2

Chances of seeing realization
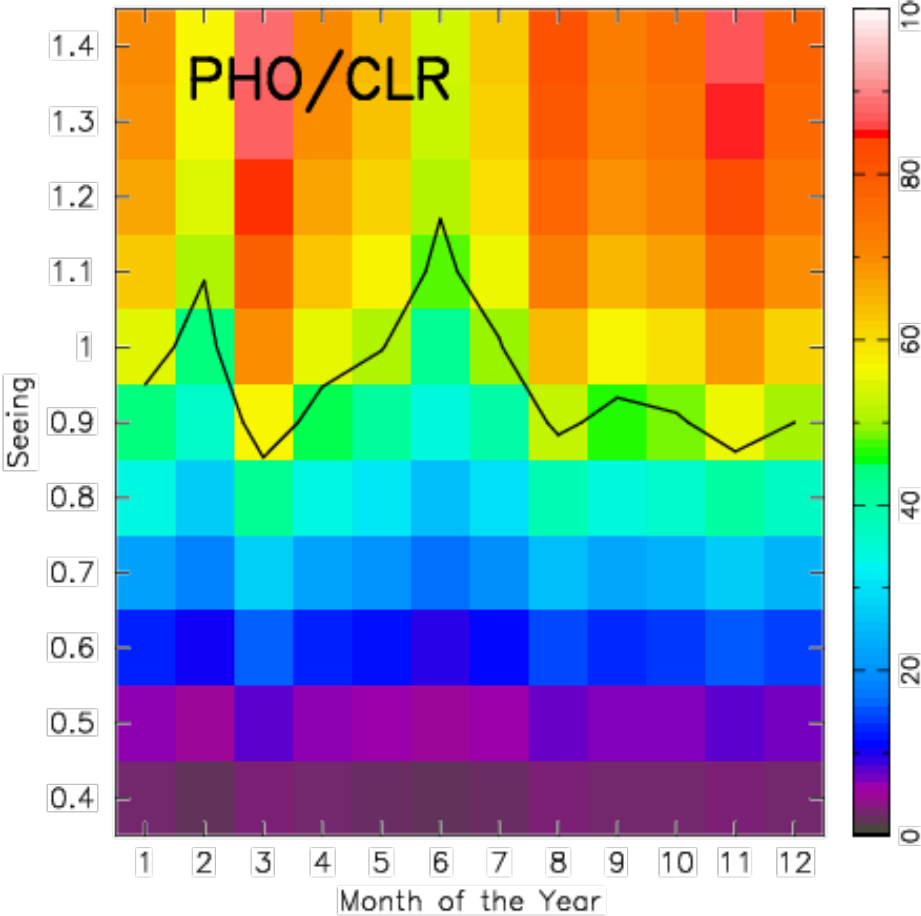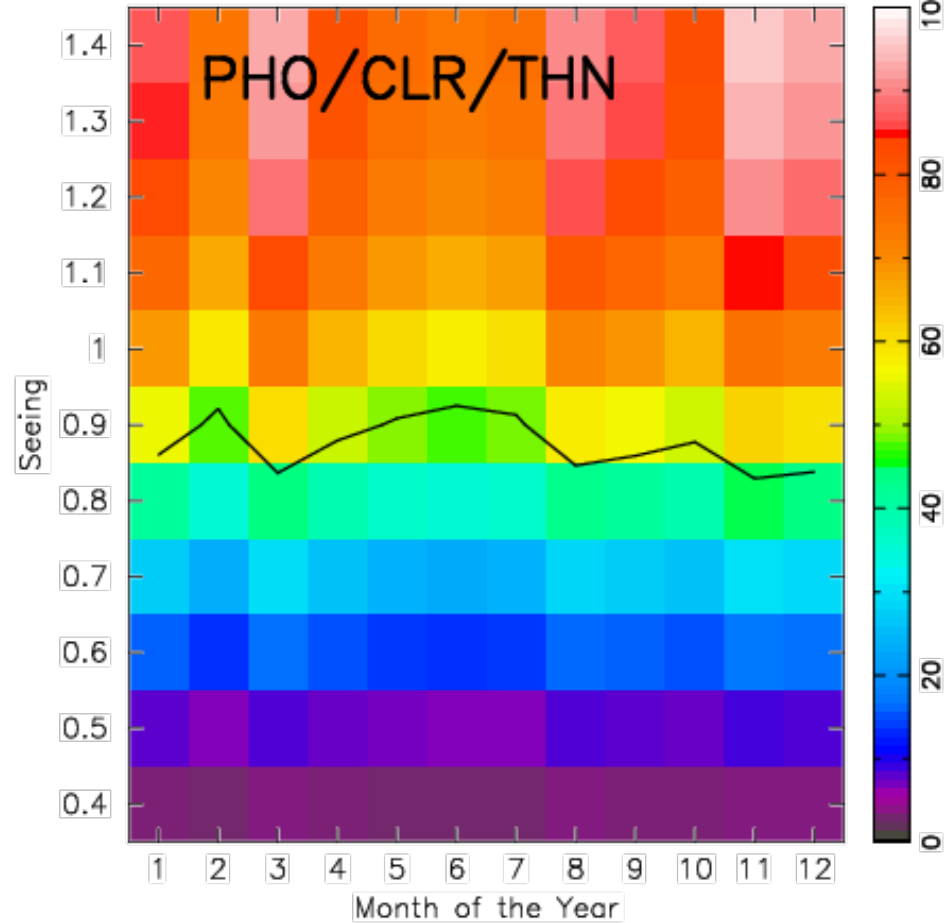
Primas, F. et al., Messenger Article (Dec 2014)

Patat 2004, Messenger
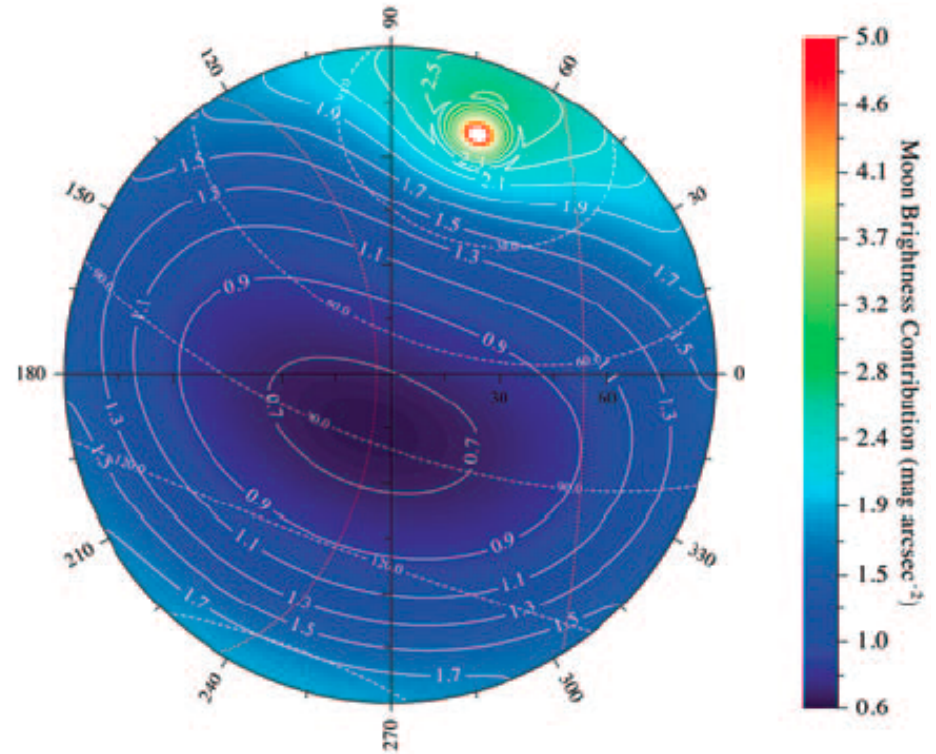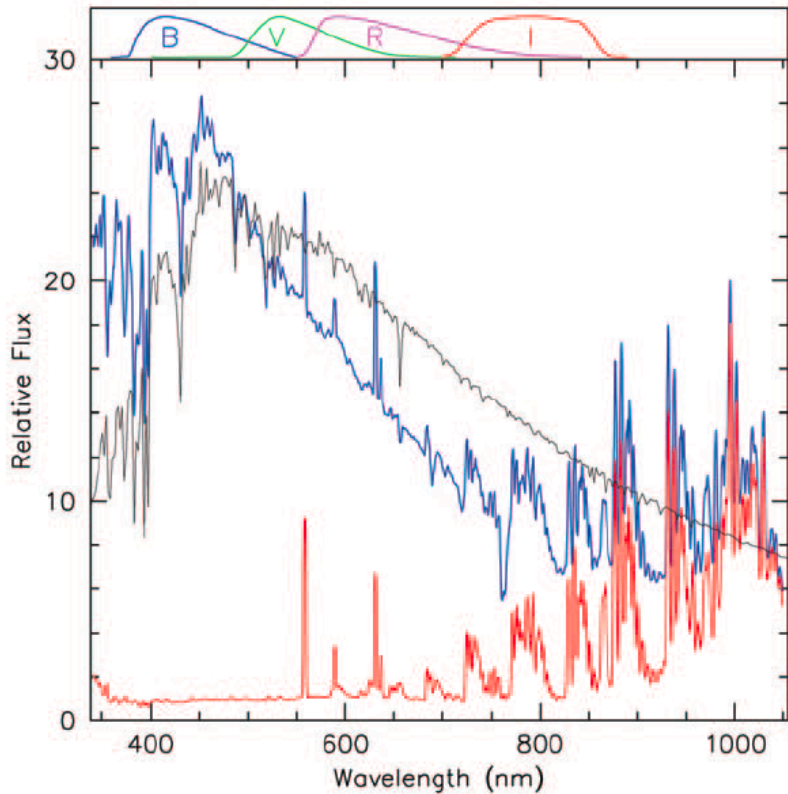
B-filter, FLI=0.5,
moon elevation 20

**Do not overconstrain your OBs (observation blocks) !
Make use of the twilight constraint**

General Strategies

■ Typical OB constraints (<u>but Phase1 is binding!</u>)

Rank A

Constraint Set	
Name	Constraints A-rank
Sky Transparency	Clear
Image Quality (arcsec)	0.6
Airmass	2.0
Lunar Illumination	0.5
Moon Angular Distance	30
Twilight (min)	0
Baseline	
Strehl (%)	0.0
PWV (mm)	0.0
Atmospheric Turbulence Model	
Contrast	0.0

Rank B

Constraint Set	
Name	Constraints B-rank
Sky Transparency	Clear
Image Quality (arcsec)	1.0
Airmass	2.0
Lunar Illumination	0.8
Moon Angular Distance	30
Twilight (min)	0
Baseline	
Strehl (%)	0.0
PWV (mm)	0.0
Atmospheric Turbulence Model	
Contrast	0.0

Rank C

Constraint Set	
Name	Constraints C-rank
Sky Transparency	Variable, thin cirrus
Image Quality (arcsec)	1.2
Airmass	2.5
Lunar Illumination	1.0
Moon Angular Distance	30
Twilight (min)	-20
Baseline	
Strehl (%)	0.0
PWV (mm)	0.0
Atmospheric Turbulence Model	
Contrast	0.0

Highest rank class
can have stringent
constraints if needed

Medium rank class
ok, but remember
termination at period
end
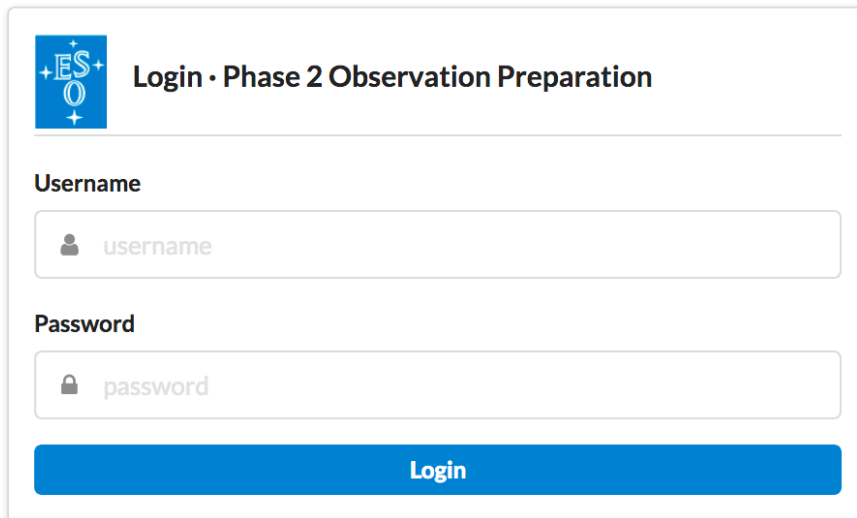
Filler rank class
relax the constraints,
re-calculate exp. times and
expected S/N

General Strategies

- Your programme has limited time allocated – Use it wisely!

p2 web-tool
Phase2 observing preparation (OB preparation)

p2 allows to give priorities to OBs

p2 allows to implement different strategies

https://www.eso.org/sci/observing/phase2/p2intro.html

General Strategies

■ Optimize your overheads!

➢ Short OBs with targets close together on the sky can be concatenated (i.e. execution in <u>immediate</u> sequence)
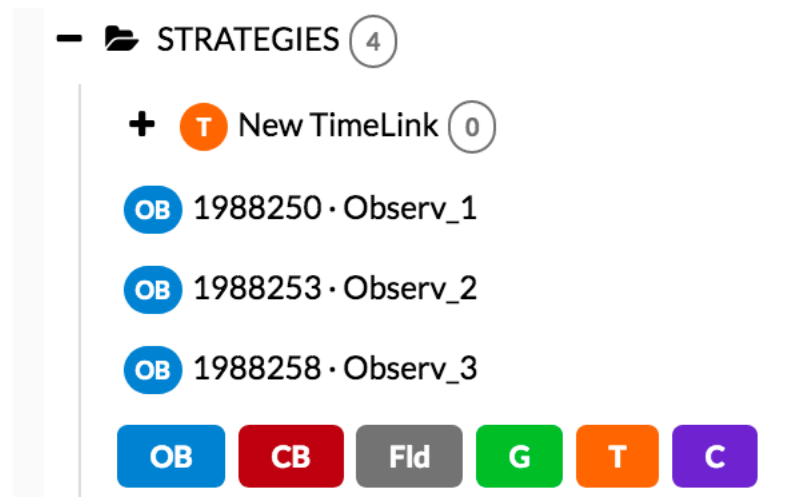
➢ Calibrators can be concatenated to the science OB
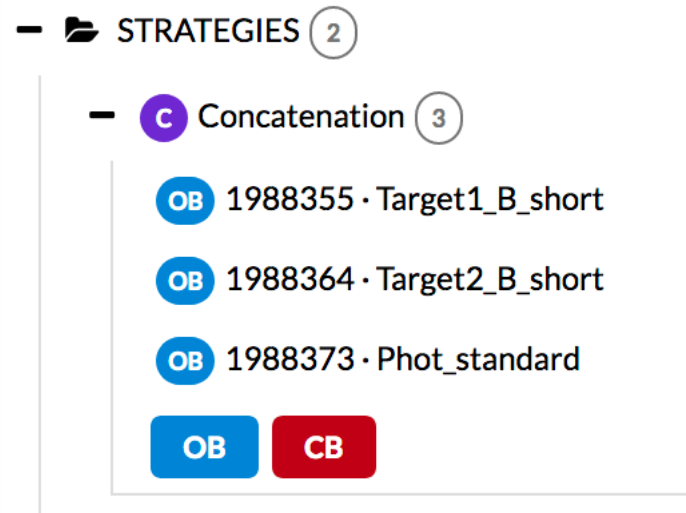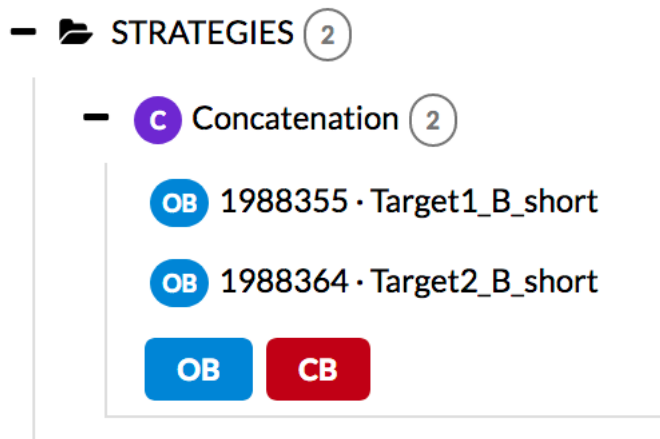
Depending on targets' distances you save up to ~5min **per OB**

General Strategies

■ Plan your time sequences!

  ➢ Use time-links → ensure the quality of your science, e.g. for variability studies

  ➢ Check the telescope schedule first

  ➢ Don't put stringent time-constraints for rank C programs, loose constraints ok

General Strategies

■ Group certain OBs together (Group containers)

➢ E.g. complete set of all filter observation for a target

➢ E.g. complete set of all (identical) OBs for a deep field

➢ Particularly useful for rank B and C programmes
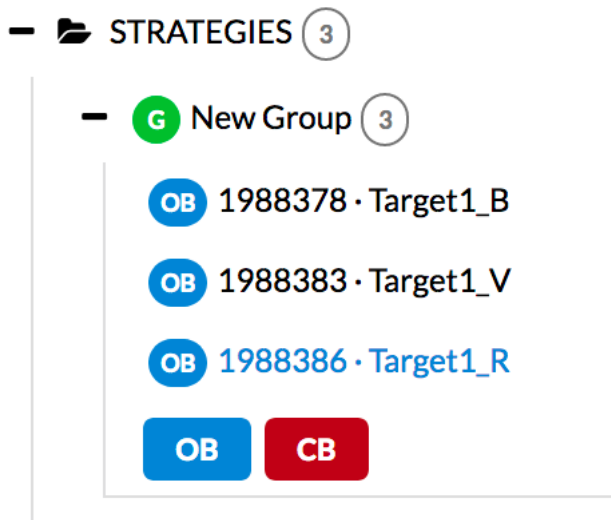
➢ Priority of execution at the telescope will increase for remaining OBs of a group once one OB of the group was started

General Strategies

■ Don't underestimate the usefulness of the Finding Charts

➢ Situation: your OB is started but then execution aborted, because the operator cannot recognize the field, or it is ambiguous

EXAMPLE

Prg. 60.C-4056

N

E
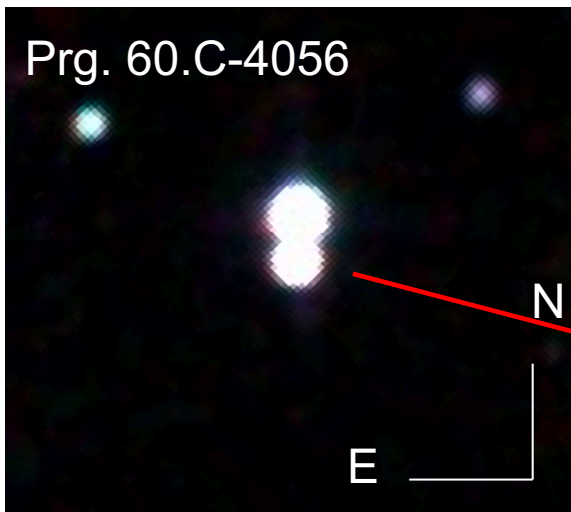
➢ ReadMe file instruction: put the bright target under the coronograph

Bad finding chart!
Which one is the target?

Multi-object spec preparation

■ How to ensure the best data are taken for multi-obj spectroscopy?

  ➤ KMOS/FORS/FLAMES have specific preparation tools – KARMA/FIMS/FPOSS

  > Take your time when fine-tuning the set-up
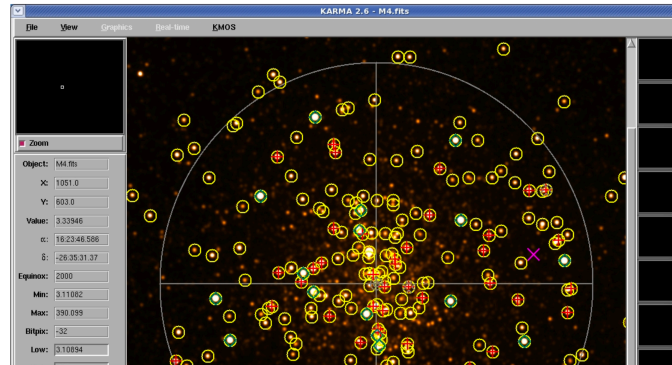
  ➤ Your target input catalog is crucial! Precise relative astrometric accuracy; reference stars must be in the same astrometric system as your target catalog; the optimization is crucial – take your time!

GuideCAM tool – MUSE/VISIR/HAWK-I

GuideCAM tool – MUSE/VISIR/HAWK-I

Define and check FOV dither pattern

Dither offset values

During the observations

■ Check the progress and act(!) if necessary

Check the status of your observing run

During the observations

■ Check the progress and act(!) if necessary

During the observations

■ Time link with "F"ailed OBs

> **Monitor** your time-links, and **contact ESO** to add missed epochs to the end of a time-sequence !!

Summary

- Careful preparation and strategy selection ensure the best use of your observing time

- Make use of ESO tools, User Manuals & Tutorials

- For help contact the User Support Department

  ## usd-help@eso.org