





The art of proposal writing: from idea to submission

Claudía Paladíní

ESO Operations Staff Astronomer

Starting point



You have a science case requiring new observations

Which technique?

Which instrument?

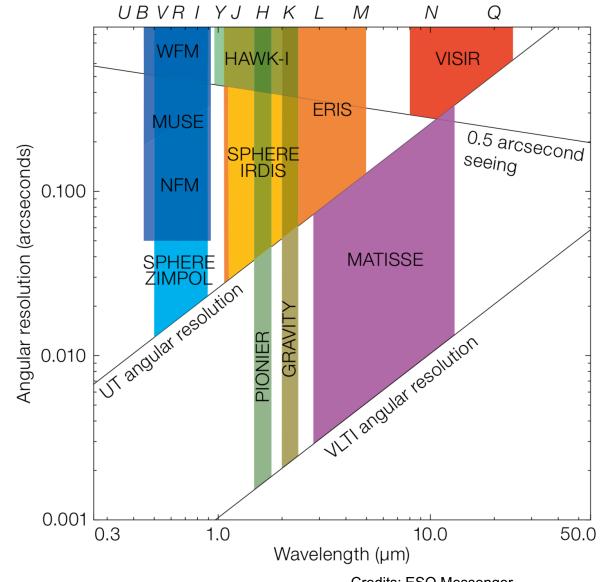
When to apply?



Credit: Vichare



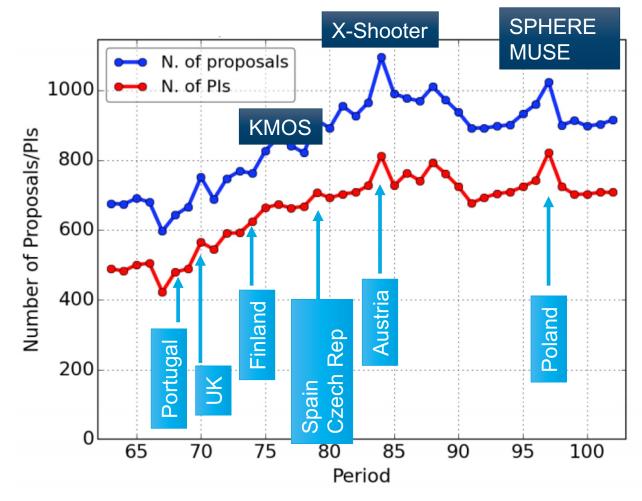








- Stabilizing ~ 950 proposals
- ~700 Principal Investigators
- ~3170 nights asked in the last 4 years (1070 scheduled)
- ~800 Proposal submitted in the last 24H!



Patat 2018, ESO User Committee meeting

"Users are encouraged to submit proposals whose targets are observable from early October till November (around RA=0h) as this range is usually undersubscribed."

Check:

Forecast of telescope pressure

Any-weather programme statistics



Different types of proposal @ESO



- Target of Opportunity ToO (events predictable in a generic sense)
- Large Program LP (> 100h, only even periods from P104)
- Guarantee Time Obs GTO (you build telescope/instrument, payment in Observing Time)
- Normal Programs NP (typically this is your proposal)
- Monitoring programs MP (< 100 h, lasting for up to 4 periods)
- Director Discretionary Time (~ 5%) DDT => Can be asked at any time.

When do you ask for DDT?

- Unpredictable ToO
- Proposal requesting observations on a hot scientific topic
- When your previous observations miss one data point for a breakthrough result

Distributed peer-review vs Observing proposal committee



All PIs of proposals requesting total time < 16h are assigned to DPR exception made for:

- Proposals including at least one ToO run;
- Calibration proposals;
- Joint VLT-XMM and VLT/I-ALMA proposals.

All the other proposals go through the standard OPC committee

Distributed peer-review rules

+ES+ 0+

- PI (or a delegated PI) of proposal qualifying for DPR accepts to review 10 proposal by the deadline
- Failing to provide the reviews by the <u>deadline</u> will lead to the automatic <u>rejection</u> of the proposal/s submitted by the given PI/dPI;
- Non-disclosure agreement applies
- Conflict must be declared

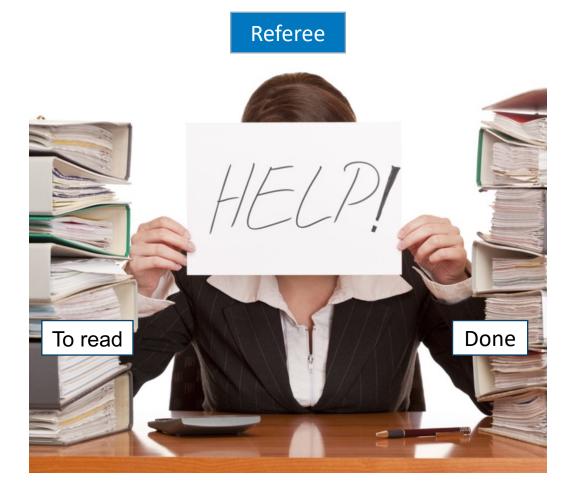


+ES+ 0 +

Panel members receive detailed instructions on the process and their role

All panel members grade all proposals and submit grades and comments to ESO

~ 40 proposal on a subject different from your to read during your free time (community service)



Conflict of interest



Should be declared by the referee one week after receiving the proposals

If detected only at the meeting – member does not vote (leave the room)

People normally follow this rule



Conflict of interest



Should be declared by the referee one week after receiving the proposals

If detected only at the meeting – member does not vote (leave the room)

People normally follow this rule



The OPC meeting



Each proposal has 1 principal referee + full sub-panel

Previously to the meeting the referees send their marks and comments to the panel

Meeting lasts for one week

- 2 days for panels meetings
- 3 days for OPC member final ranking

Time spent with each proposal

- Before panel typical time is ~ 20 min
- During panel discussions typical time is ~ 5-7
 min



How the referee grades





Sufficient background/context for the non-expert?



Are previous results clearly presented?



Are the proposed observations and the Immediate Objectives pertinent to the background description?



Is the sample selection clearly described, or, <u>if a single target, is it justified</u>?



Are the instrument modes, and target location(s) specified clearly?



Will the proposed observations add knowledge to the astronomical field?







European Organisation for Astronomical Research in the Southern Hemisphere

Observing Programmes Office • Karl-Schwarzschild-Strasse 2 • D-85748 Garching bei München • email: opo@eso.org • Tel: +49 89 3200 6473



Cycle: P108 Type: Large Status: Valid

Printed: 10 Jun 2021

APPLICATION FOR OBSERVING TIME

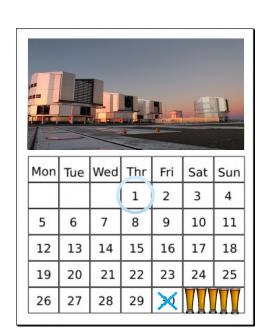
IMPORTANT NOTICE

By submitting this proposal, the PI takes full responsibility for the content of the proposal, in particular with regard to the names of CoIs and the agreement to act according to the ESO policy and regulations, should observing time be granted.

Calls ~1st March and ~1st September

Deadlines are ~31st March and ~1st October

(check on the <u>ESO webpage</u>, ongoing discussion to move it to 1 call per year)



+ES+ 0 +

Rule 1 RTFM

Read This Fantastic Manual





 ${\bf ESO\ Call\ for\ Proposals-P112}$

Proposal Deadline: 28 March 2023, 12:00 noon CEST

+ES+ 0 +

Rule 2 RTFM

as well as the instrument manuals and instrument webpages



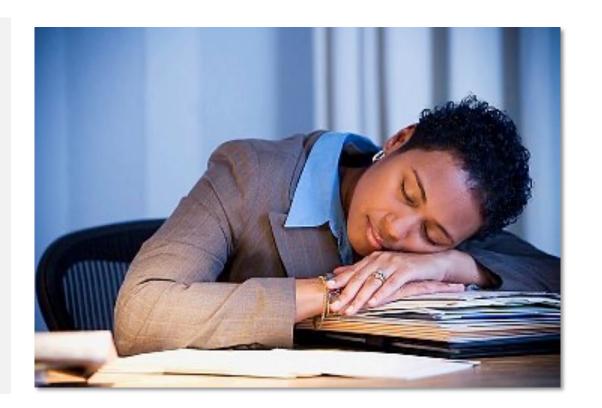


ESO Call for Proposals — P112
Proposal Deadline: 28 March 2023, 12:00 noon CEST



Rule 3

Do not start writing the proposal the evening before the deadline.



This is BAD.



Rule 4 Follow rules of anonymization



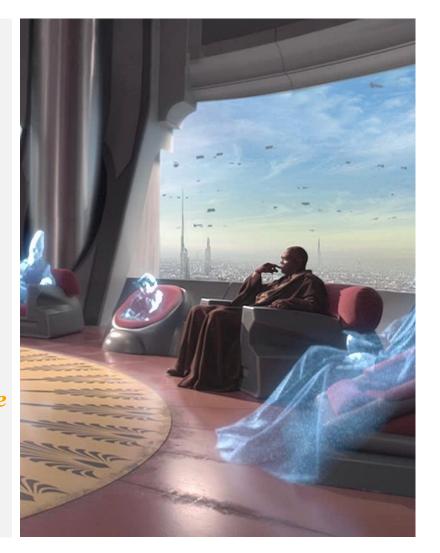
Major violations are flagged to the Director General and lead to the disqualification of the proposals



Rule 5

- Understand the system
- Read the Call for proposal
- Read Science Operation policy
- Read User group minutes
- Discuss with ESO national representative

Don't be afraid of contacting ESO Help-Desk and/or the VLTI expertise centers, their job is to assist you





Rule 6
Ask a
colleague
from another
field to read
your proposal

Strictly connected with Rule 3



The **ESOFORM**

Based on the esoform-112

Be aware of changes from one call to another!



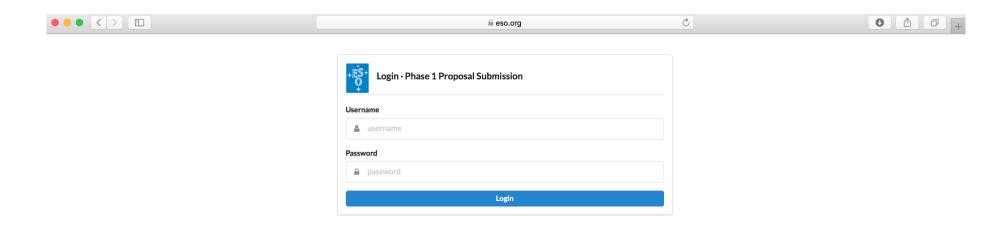




ESO Call for Proposals — P112
Proposal Deadline: 28 March 2023, 12:00 noon CEST







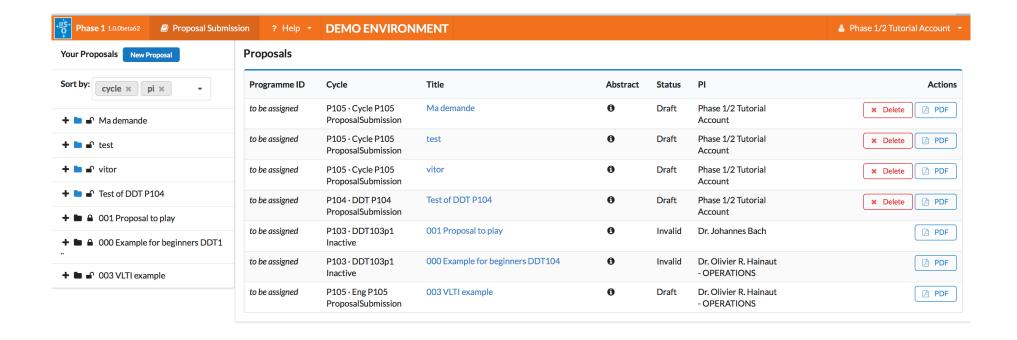
Remember to register and get used to the tool well before the deadline!

www.eso.org/pi1demo



The phase 1

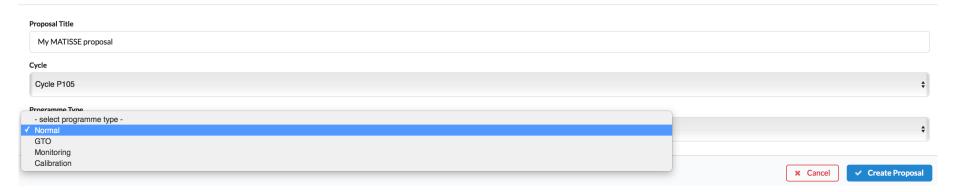






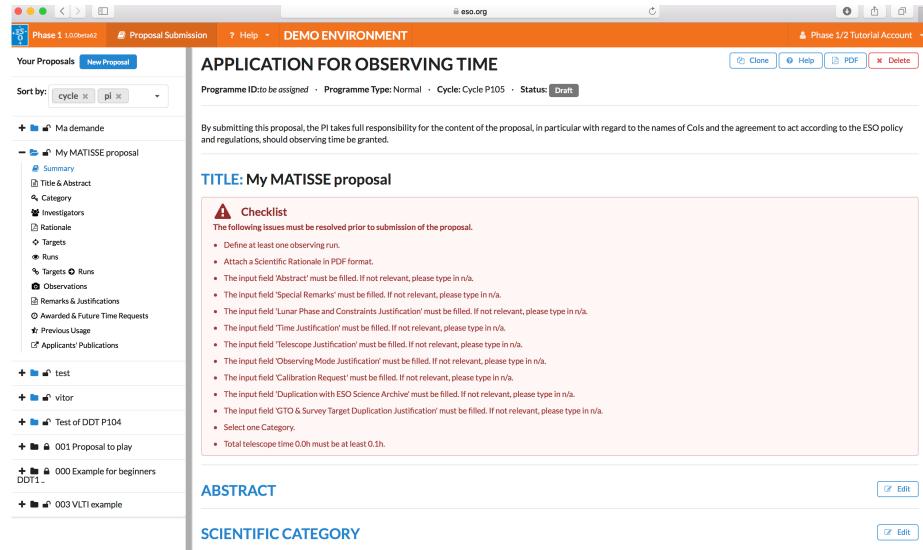


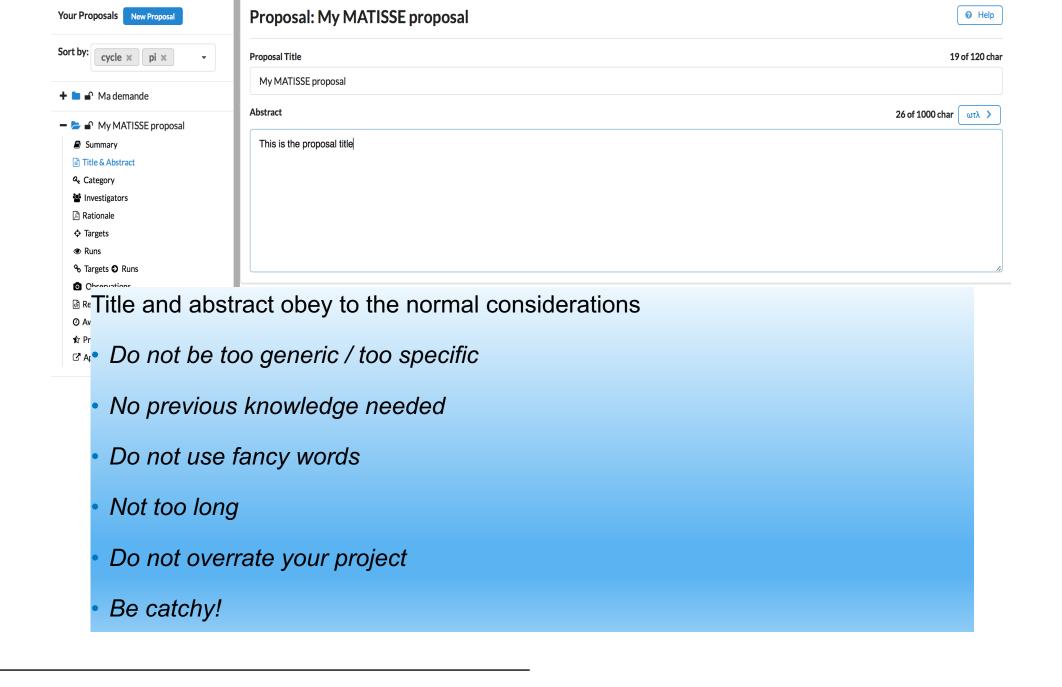
Add Proposal

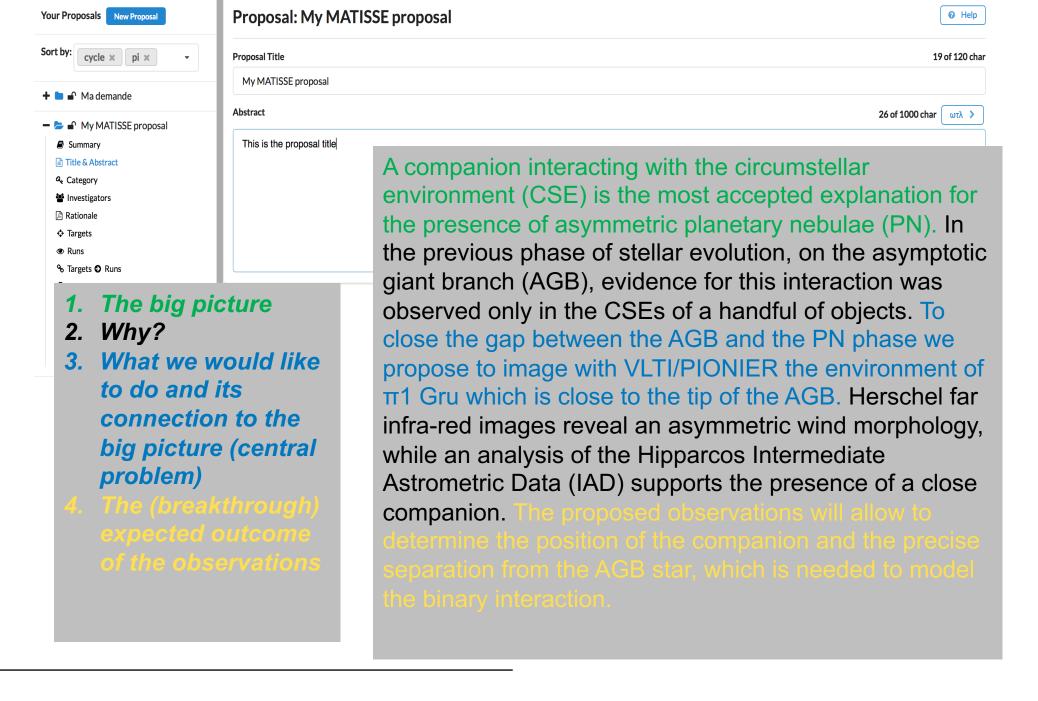


The phase 1





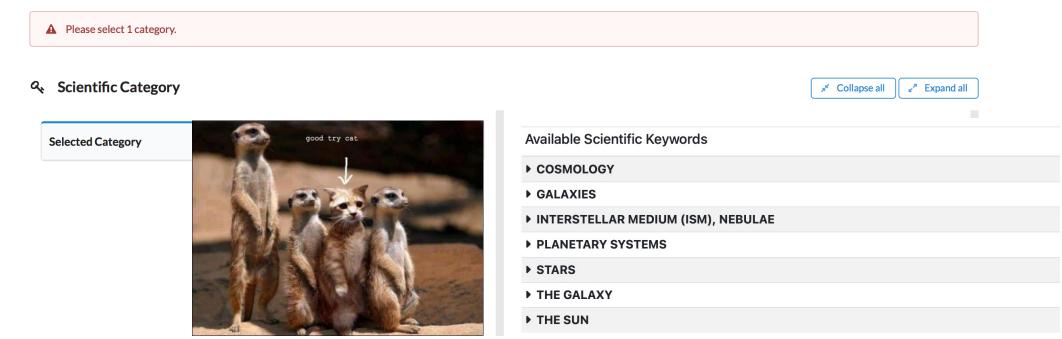










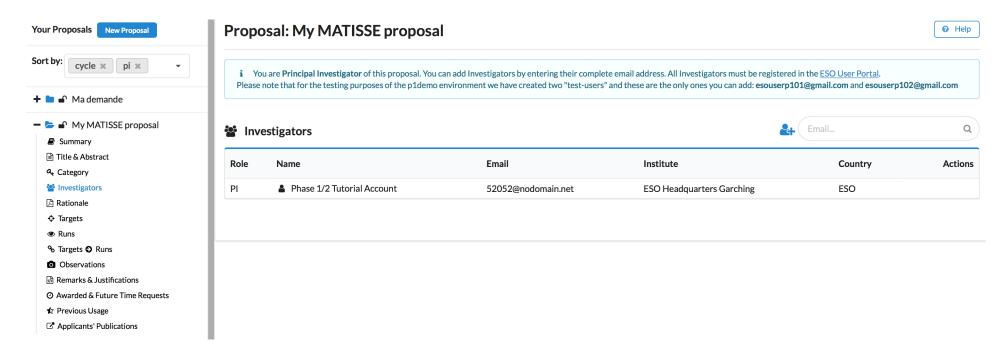


Categories

Will define who is going to read/judge your paper







Investigators: remind them to register to the ESO portal!

BUILD YOUR TEAM: choose your Cols thinking about the science that you want to do!

7. Description of the proposed programme

A – Scientific Rationale: Scientific rationale: scientific background of the project, pertinent references; previous work plus justification for present proposal.



"Sell" your story!

Similar form to a paper introduction but simpler (remember panel composition!)

The importance of the work in the field at large (sometimes very large, like for LP) should be made clear

- 1. Why do we care?
- 2. What are the important open questions?
- 3. What are you going to address?
- 4. What is the important missing piece?
- => Answer: your observations



B – Immediate Objective: Immediate objective of the proposal: state what is actually going to be observed and what shall be extracted from the observations, so that the feasibility becomes clear. In the case of VLT-XMM programmes please also specify the immediate objectives of the XMM observations.



- Present the observations you are proposing to address the previous question(s)
- The results and discussion of the paper should be anticipated
- If you get a negative result discuss the implications

- Feasibility must be clear don't try to trick the referee
- Always identify objectively the risks and outcomes
- Present your strategy for data reduction and interpretation

Description + Immediate Objective 2 pages including figures





- FOCUS and be consistent!
- Choose the most interesting-catchy-cool result you expect
- Choose 1-2 nice, representative, simple figures

Be aware of the dual anonymous guidelines!

Run Summary



Run	Period	Instrument	Tel. Time	Constraints	Mode	Туре	Tel. Setup	Propr. Time	Time Constraints
1. Run 1	105	MATISSE	1.0h	Turbulence: 70% (Seeing < 1.15 arcsec, t0 > 2.2 ms) pwv: 30mm Sky: PHO	SM	Normal	VLTI-AT	12m	



Special Remarks	0 of 1000 char	ωτλ >
i Take advantage of this box to provide any special remark.		

Special remarks

- stress out you are requesting just a small amount of time for outstanding outcome
- Your proposal has loose weather constraints => qualifies as filler



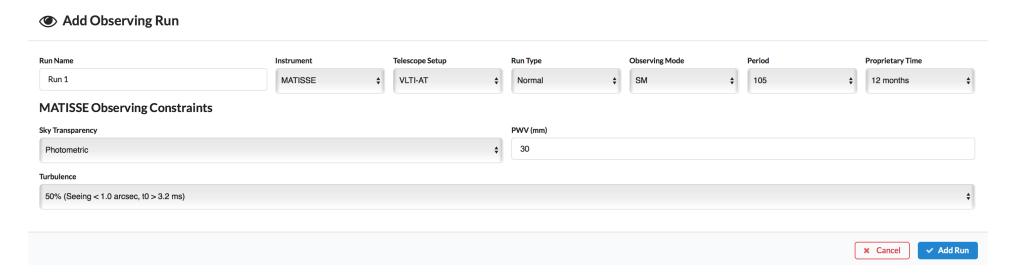


Add Target

05:55:10.30	07:24:25.4	J2000	*
Proper Motion Declination	Epoch	Parallax	Radial Velocity Redshift
0.01130	2000	6.550	21.91
+) or hit [enter] to save.			
×			
x			
	0.01130 iitude or pairs of wavelength/flux. Sperth) or hit [enter] to save.	0.01130 2000 iitude or pairs of wavelength/flux. Specify wavelengths in nm, and fluxes in W/m2/nm +) or hit [enter] to save.	0.01130 2000 6.550 situde or pairs of wavelength/flux. Specify wavelengths in nm, and fluxes in W/m2/nm (point source) or W/m2/nm/arcsec2 (extended so +) or hit [enter] to save.



Do not over constrain your observations



Identify your **minimum** requirements

 If you ask 2" you always get usually better than that (do not be too strict nor too relaxed!)

Be aware of the turbulence constraints & <u>make sure you select the right</u> <u>category both for instrument and telescope guiding</u>

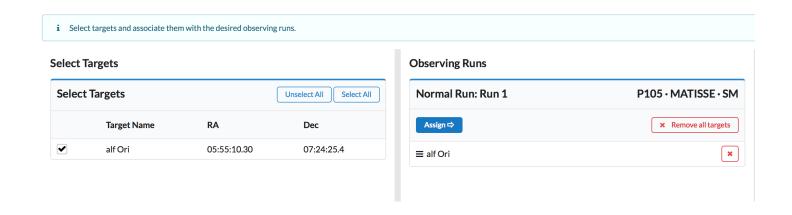




Observing Runs + Add Run Show all Show all with details ▼ ≡ Run 1 - Run 1 · P105 · MATISSE · SM Turbulence: 70% (Seeing < 1.15 arcsec, t0 > 2.2 ms) pwv: 30mm Sky: PHO **×** 2 ▼ **■ ☆** 1. Observing Setup: OS 1 MATISSE Observation × × Do photometry sequence (T or F) Interferometric Array small Types of interferometric Spectral mode for L&M bands observations LOW imaging Spectral mode for N band LOW







Assign the target to the run

More targets can be assigned to the same run

Constraints



Lunar Phase and Constraints Justification

i Justification of the requested conditions in terms of lunar phase and constraints. Please reference all runs having different constraints.

Lunar Phase: important for Adaptive optics (NAOMI, MACAO), not for VLTI instruments! See the manuals

Time Justification

0 of 1000 char wτλ >

1 Justification of the telescope time, including technical and seeing overheads. Please discuss each run.

- Identify the amount of time CRUCIAL to achieve your goals and justify it, stay simple
- Use the Exposure Time Calculator (see Lucertini talk later today)
- The numbers on the manual and overhead table rules!



The CfP, ESO manuals, the instrument webpages and <u>overhead table</u> rule!



Credit: Game of thrones season 2, episode 6.

Constraints



Telescope Justification	0 of 1000 char	ωτλ 🕻
i Justification of the choice of telescope (eg. VLT, NTT, etc) with respect to other available alternatives. For non-Member State Proposals, indicate whether alternative proposers.	es are available to the	

- Why GRAVITY and not PIONIER? Why not aperture masking? Why MATISSE and not VISIR?
- Beware of asking UT time when it can be done with ATs

Constraints



Observing Mode Justification 0 of 1000 char ωτλ 🗦 i Explain if a particular observing mode (Service/Visitor) is specifically needed for this programme. If either is suitable, then please enter N/A. Visitor Mode (VM) can be relevant if Observing difficult targets (magnitude/zenithal distance) Be aware of the new "designated VM" Service is more efficient **Calibration Request** 0 of 1000 char i If calibrations are required in addition to the standard calibration plan, justify why, and describe them. If the calibration plan is sufficient, please enter N/A. Check on the instrument manual! Careful with creativity....





Duplication with ESO Science Archive	0 of 1000 char	ωτλ 🔰
i Are the data requested by this proposal in the ESO Science Archive? If so, explain the need for new data. Otherwise, please enter N/A.		
		,
GTO & Survey Target Duplication Justification	0 of 1000 char	ωτλ >
GTO & Survey Target Duplication Justification i Are some of your targets part of the GTO-protected target lists? If yes, please explain why there is no conflict with the GTO programme. Otherwise, please enter N/A.	0 of 1000 char	ωτλ >
	0 of 1000 char	ωτλ >
	0 of 1000 char	<i>ω</i> λ λ
	0 of 1000 char	ωτλ >

- Justify archive duplication
- Check the GTO list online before starting to write. You cannot duplicate GTO observations!





- Bad use of telescope time:
 - Huge program with low return (probability)
 - Asking not enough time
- Don't consider panel composition
 - The proposal should very well introduce the domain
- Errors that show that the proposal was done in a hurry
 - after copy and paste read what you wrote..
 - after 2 days read again!
- Asking for too stringent observing conditions
- Unstructured proposal
 - Figures can be very useful, even if they are not mandatory
- Submitting too many proposals



Tips & Tricks





The panel likes:

Innovative/ambitious FEASIBLE proposals
With high impact potential when compared
with the average A&A paper
Well structured proposals



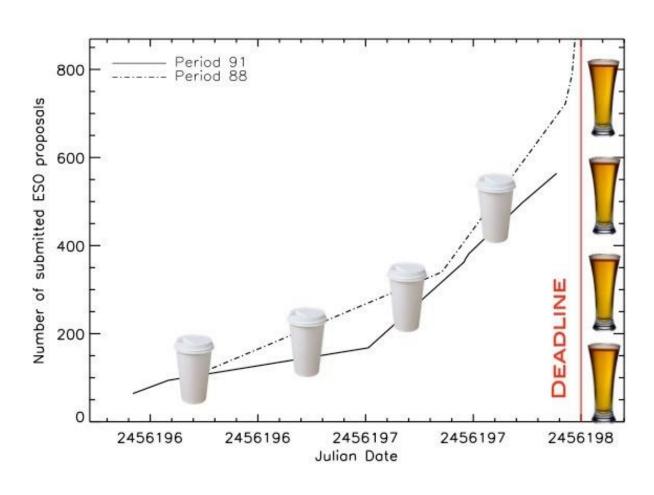
Remember:

When you apply for 1 target explain why exactly that star (relevance for the field of research)

If you apply for a Large Program your proposal will be judged by all the panels: program relevant for every field of research!







AFTER THE OPC MEETING



106 \$ Change period

You can find below a list of all the proposals that you submitted for application for observing time during Period 106. Please for each of them read carefully the additional information accessible by clicking on the programme ID, which covers important aspects related to time allocation comments, technical feasibility issues, scheduling and deadlines.

Status	Programme ID	Title
X	106.D-0001	This is the title of your proposal number 1
~	106.D-0002	This is the title of your proposal number 2
~	106.D-0003	This is the title of your proposal number 3 (did you really write 3 proposals?)

<u>Strength:</u> This is a new field of investigation which is worth exploring and which has the potential of providing crucial constraints to the current theories of convection.

<u>Weakness:</u> The sample size is not justified. Why seven stars (no more, no less)? What will this sample be able to test that cannot be done with less stars or would not greatly benefit from an extended sample...

Proposal ranking categories



A: Programs highly ranked

- All possible effort will be made to execute all the OBs in the requested observing period
- If not totally executed
 - can be declared "substantially complete"
 - carry it over to <u>at most</u> the next useful period (only Large Programs)

B: Programs well ranked

 Best effort will be made to execute all the OBs in the requested observing period

C: Filler programs selected from below the cut-off line

- OBs will only be executed if the observing conditions do not permit to conduct programs A and B
- If you have no weather constrains you will very likely get data!

What to do when you get rejected



Do not overemphasize the message you got

Understand why you got rejected

- Read the proposal again
- Ask your colleagues to read the proposal and give you his feedback
- Always be positive and objective during communication

Avoid at all cost entering conspiracy theories



What to do when you get A/B but no data...



- Re-submitted with a special remark on non-execution and grade (careful with anonymization!)
- Relax observing constrains (seeing, ETC)
- Remember that scheduling is done by software...



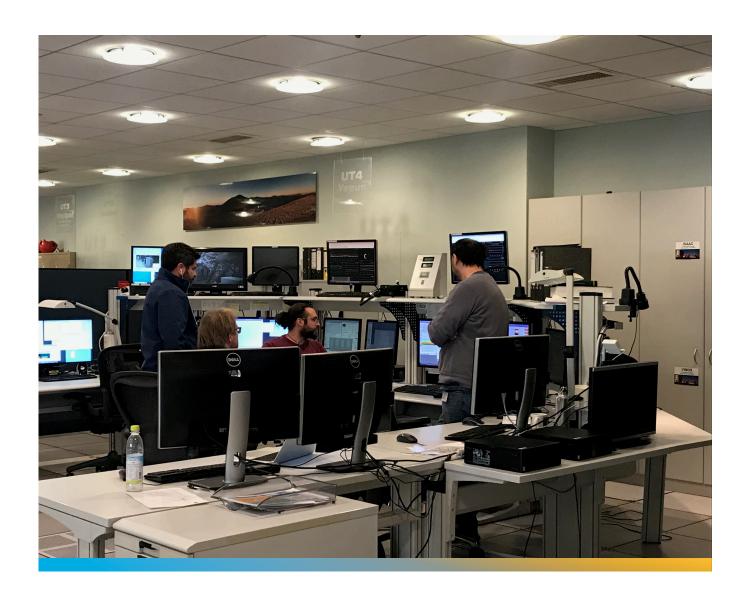
More Tips & Tricks



=> learn to write proposal: exercise, exercise...

- To have ideas for a science case read a lot of papers and go to seminars! Even if they are not related to your PhD/scientific topic!
- When you have an idea try first to convince your collaborators.
- Do not wait the day before the deadline! At least try...
- Read the manuals, read the manuals, read the manuals...
- Check carefully your targets! (are they bright enough? are they in the right emisphere? are they observable in the period of the call?).
- Use the tools for preliminary modeling & feasibility! (ETC)
- Aim for a balance between humility + open-mindedness (80% perhaps) and arrogance + sheer-self-belief (20%).
- Having a really good abstract and title are surprisingly helpful





Service Mode To Do list

Read p2 & instrument manuals

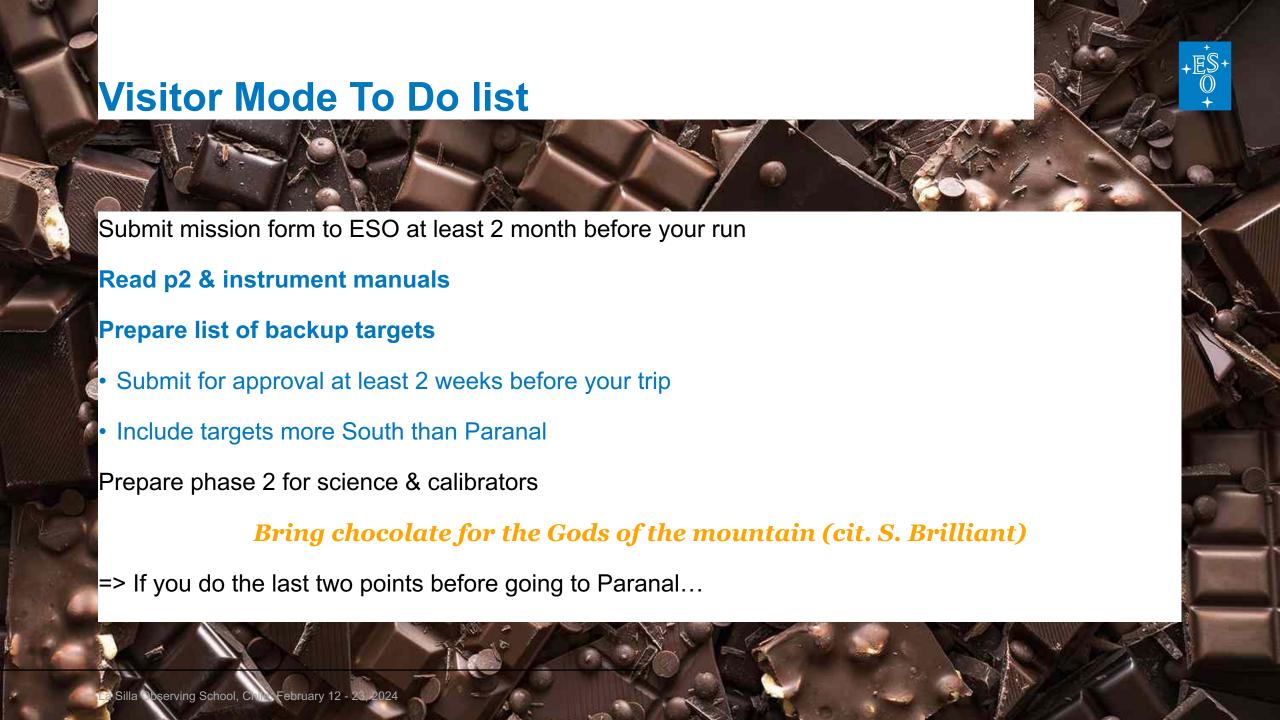
Search for calibrators

Prepare phase 2 for science & calibrators

Attach Finding Charts in the right wavelength for the telescope guiding

Write README

- => Submit material to ESO within the deadline
- => see Francesca's talk







... you'll be allowed to bring your swimming suit ...



Thank you!

Claudia Paladini cpaladin@eso.org

- f @ESOAstronomy
- @esoastronomy
- ✓ @ESO
- in european-southern-observatory
- @ESOobservatory