



HOW TO WRITE A GOOD PROPOSAL

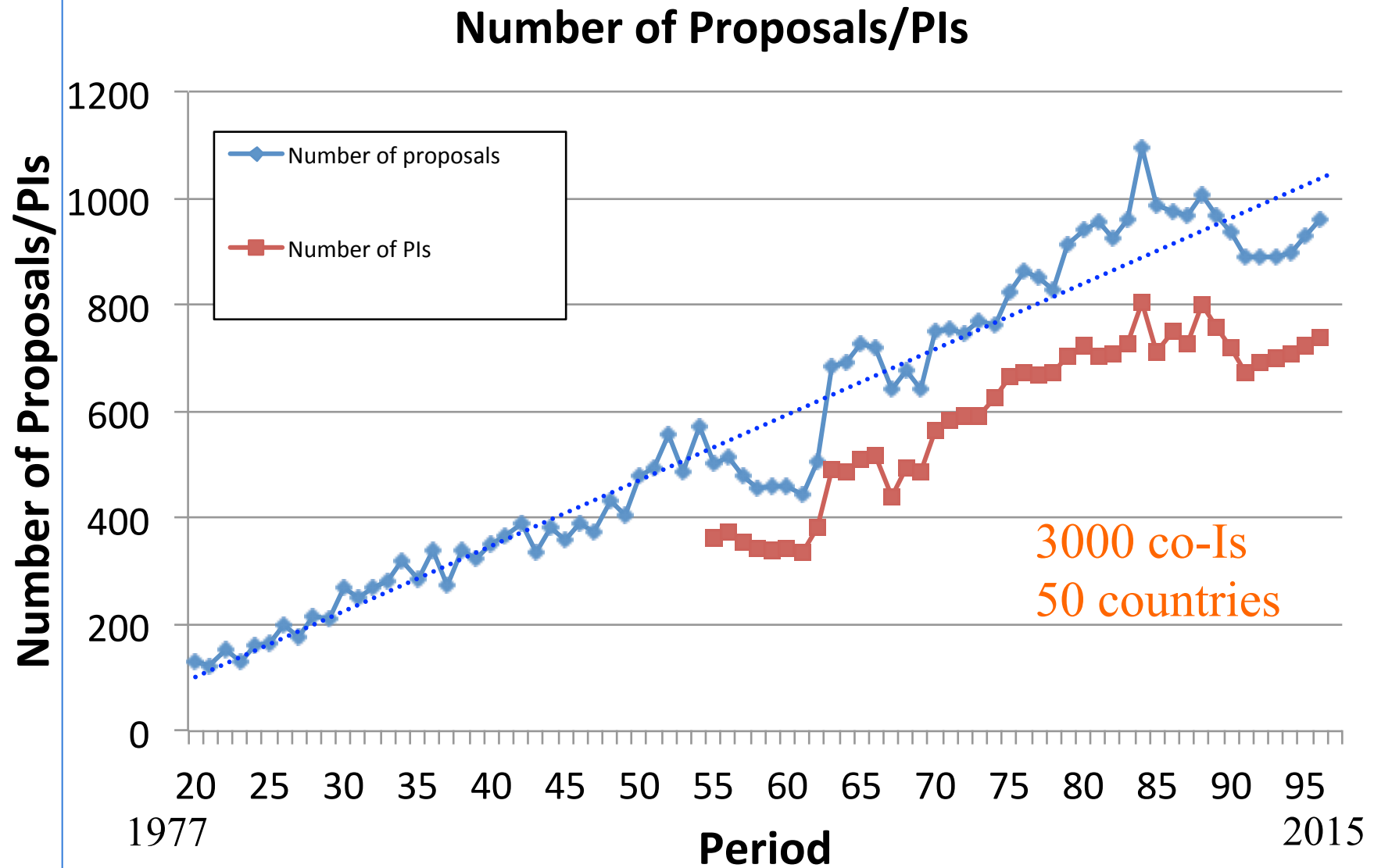
Gaitee Hussain

Observing Programmes Office





40 years of proposals at ESO





Proposal submission overview

- ESO receives >900 proposals/period
 - ~700 distinct PIs
 - ~3000 co-Is from ~50 countries (IAU ~10,000)
 - serving 30% of the global astronomical community

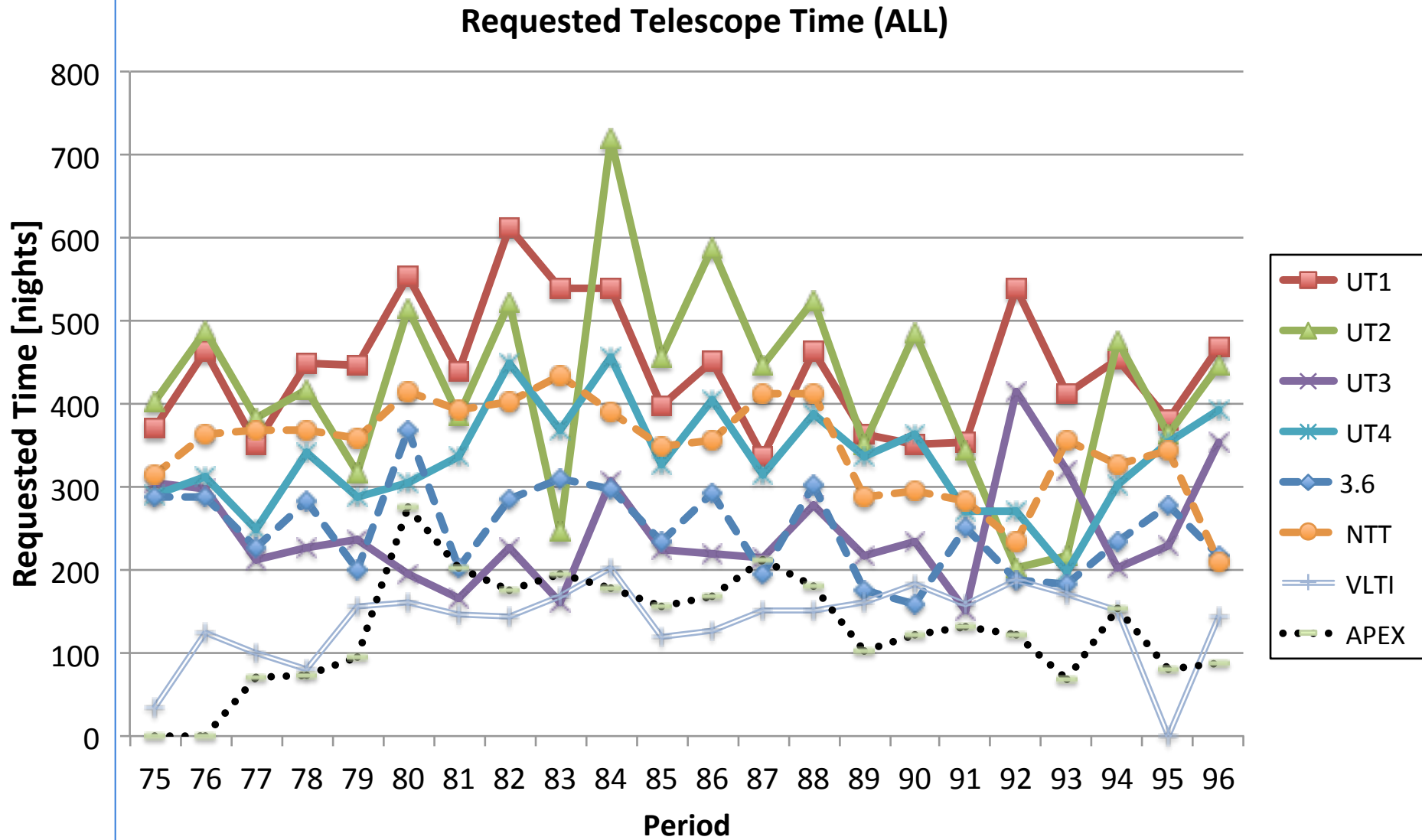
- Request ~3200 nights/semester
 - Available science time ~1070 nights/semester

- Proposals are judged by 79 referees in 13 panels
 - 60-100 proposals each
 - Serving the community – be kind to them!





Telescope Demand





What makes a proposal successful?

■ Exciting science

- providing a clear progress in our understanding of some phenomenon

■ A neat idea

- unusual method, new idea, unique approach

■ Clear language

- presentation of an exciting story, which is interesting for many people
- self-contained case which answers questions referees may have
- quantitative arguments for the time requested



Your sales pitch: The Abstract

- Write your abstract first
 - this is the one paragraph that is guaranteed to be read by everybody
 - distill your excitement into one paragraph
 - revisit your abstract several times during the writing and improve it



The case: Be creative

- What physical questions/processes are you trying to understand?
 - **Caution: Whenever you think you had a great idea, either somebody else had it already or it is a bad idea**
- Why is this particular field/object the right one to answer the question posed above.
 - **Summarise what is already known about the source(s) from the literature or from your previous work.**
- What are your proposed observations & how will you use them to address the above questions?



First check the ESO Archive

- The ESO data archive
 - is a rich source of excellent data
 - abstracts of previous proposals available
 - data public 1 year after delivered to the PI
 - easy retrieval and selection of calibration data
 - way to progress, if your competitor got observing time



The case: Be clear

■ Avoid jargon

- expressions in your field may not be used by others

■ Avoid acronyms

- HR diagrams, H_0 may be OK, w' needs explanation
- if you need acronyms or special terms explain them

■ Be explicit, do not assume that the panel will work out what you meant

- avoid complicated language and be concise
- use simple English - have (senior) colleagues or collaborators read your proposal



The case: Be technical

- Need to justify the request for telescope resources (time/instrument/conditions)
- Explain the analysis or (even better) show the results of similar analysis
- Your “audience” cover a broad range of topics.
 - Your proposal will be the 40th or 60th one they’ve had to read – make it interesting!
 - Don’t lose them at any point!



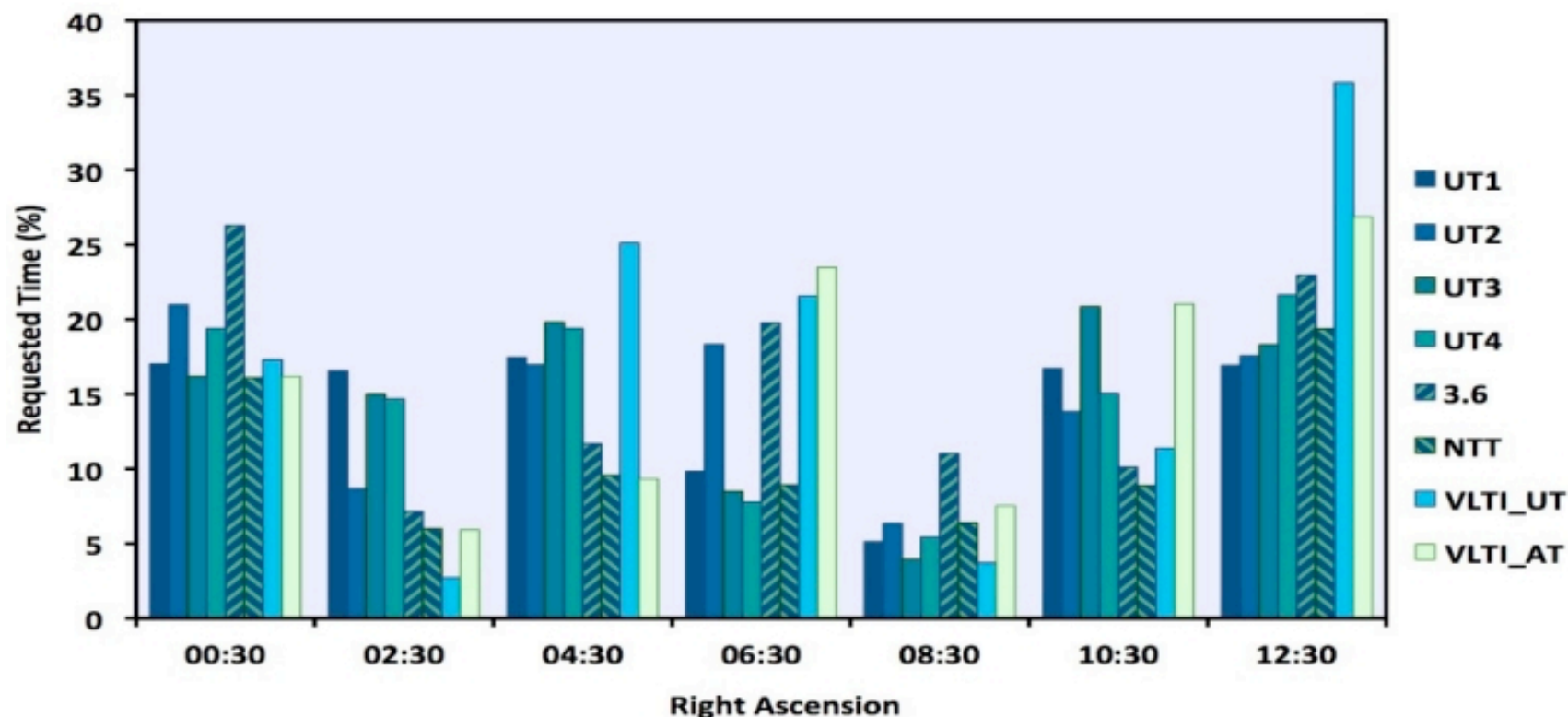


Technical details & consistency

- Write a consistent proposal
 - Have you selected the best suited instrument for your observations?
 - The exposure times and the target sample have to match your science case
 - Exposure times have to make sense, use the ETCs
 - Figures (tables) should help the text and be relevant
 - There is a good chance one referee will pick up on any inconsistencies



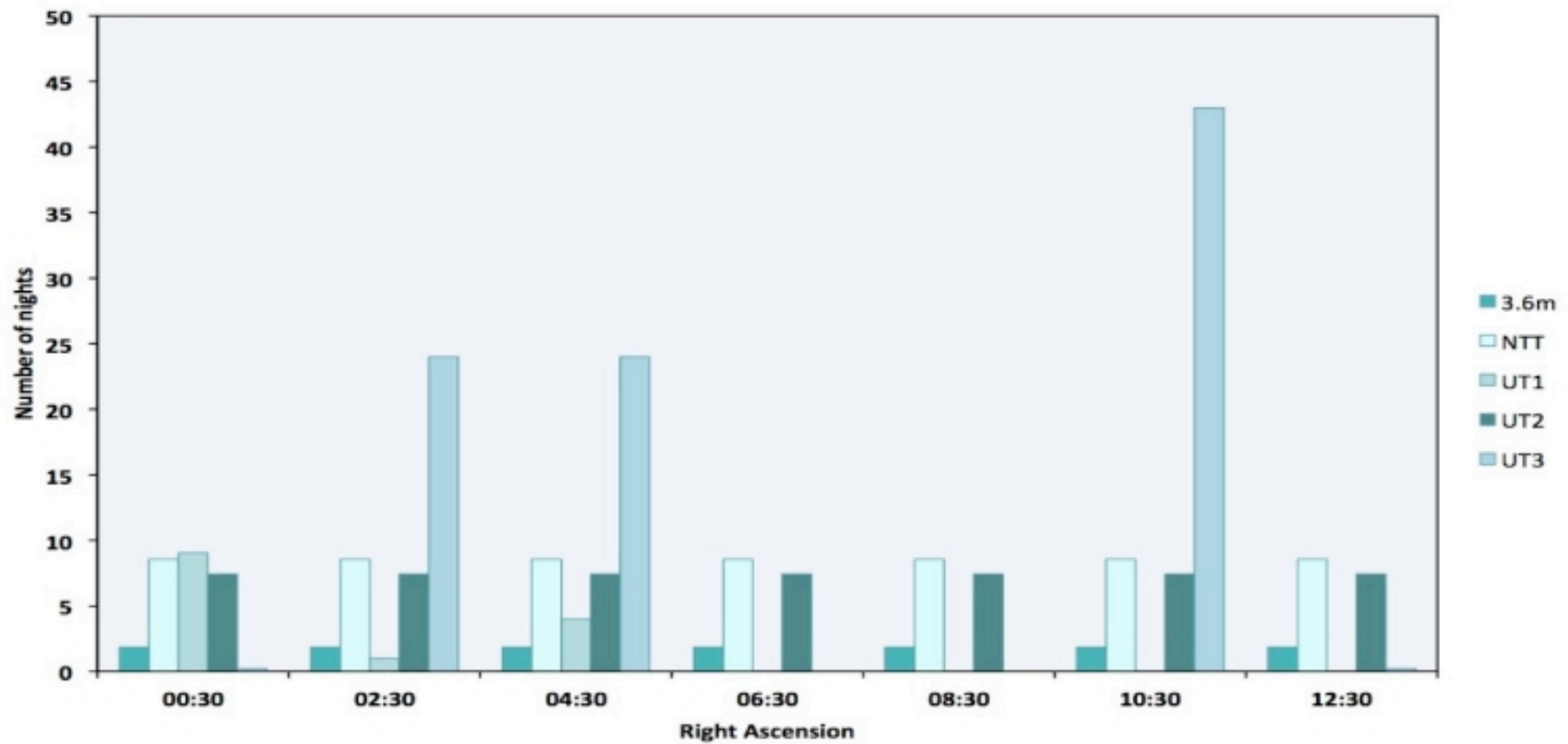
Telescope demand



- Some right ascensions are in high demand
- Updated plots available **every period** from:
<http://www.eso.org/sci/observing/phase1/pressure.html>



Ongoing LP Commitments





Overheads & Exposure Times

- Exposure times are derived from the Exposure Time Calculators (ETC), provided for each instrument.

<http://www.eso.org/observing/etc/>

- Most accurate way of verifying overheads and execution time is to use the Phase 2 Proposal Preparation Tool (P2PP)
 - Prepare test Observing Blocks (OBs).
 - Proposals need execution times – not exposure times!





Example UVES ETC

UVES Exposure Time Calculator

[HOME](#) [INDEX](#) [HELP](#)

Optical Echelle Spectroscopy Mode [Version 5.0.1](#)

[Description.](#) [F.A.Q](#)

Input Flux Distribution

<input checked="" type="radio"/> Blackbody	T: 11000.000 Kelvin
<input type="radio"/> Power Law	Index: 0.000 F(lambda) is proportional to lambda ^(Index)
<input type="radio"/> Template Spectra	A0V (Pickles) Redshift z: 0.000 <i>(only applicable to the Template Spectra option)</i>

Object Magnitude: 17.000 Band: v

Magnitudes are given per square arcsec for extended sources. Note that some template spectra are defined over a limited wavelength range and may not allow calculations for all instrument configurations. The object magnitude is not taken into account for single line sources.

<input type="radio"/> Single line	λ: 520.000 [330-1000] nm	FWHM: 0.100 nm	Flux 2.000 10 ⁻¹⁶ ergs/s/cm ² (per arcsec ² for extended sources)
--	--------------------------	----------------	--

Spatial Distribution: **Point Source** **Extended Source**

Sky Conditions

Days From New Moon: 3 days Airmass: 1.600 Seeing: 0.800 arcsec





Overheads are important!

■ Get them from the instrument web pages

Overheads

Direct links to instruments on [UT1](#) , [UT2](#), [UT3](#), [UT4](#), [VLTi](#), [VISTA](#), [VST](#).

Telescope	Instrument	Action	Time (seconds)
UT1		Preset + GS acquisition + active optics	360
UT1		Preset + GS acquisition + active optics (2nd OB and following in a concatenation)	(40+target separation in deg)+60
	NACO	see User Manual	---
	FORS2	Acquisition IMG/IPOL/LSS/HIT (1 loop)	90
	FORS2	Acquisition MOS/MXU/PMOS (1 loop)	120
	FORS2	Through Slit Image (2 loops w/o exp. times) ^[1]	240
	FORS2	Instrument Setup	30
	FORS2	Collimator exchange	270
	FORS2	Retarder Plate Setup per PMOS/IPOL OB	60
	FORS2	E2V Read-out 100kHz binned (spectroscopy)	39
	FORS2	E2V Read-out 200kHz binned (imaging)	28
	FORS2	E2V Read-out 200kHz unbinned (imaging)	78
	FORS2	MIT Read-out 100kHz binned (spectroscopy)	41
	FORS2	MIT Read-out 200kHz binned (imaging)	31
	FORS2	MIT Read-out 200kHz unbinned (imaging)	62
	KMOS	Acquisition, MOSAIC setup	0
	KMOS	Acquisition, non-MOSAIC setup, without exposure time, per cycle (2 cycles usually necessary):	
	KMOS	- : read-out + writing image to disk	6
	KMOS	- : interaction + image reconstruction	35





Don't – (1/2)

... submit more proposals (as PI or co-I) than you can reasonably deal with in a semester

- this is not a lottery (!)
- referees may be concerned that you will not publish

... include co-Is without their explicit agreement

... falsify parameters in the proposal form to get the proposal through online verification

- Exceptions with compelling scientific justifications are possible: **email OPO (opo@eso.org) now!**

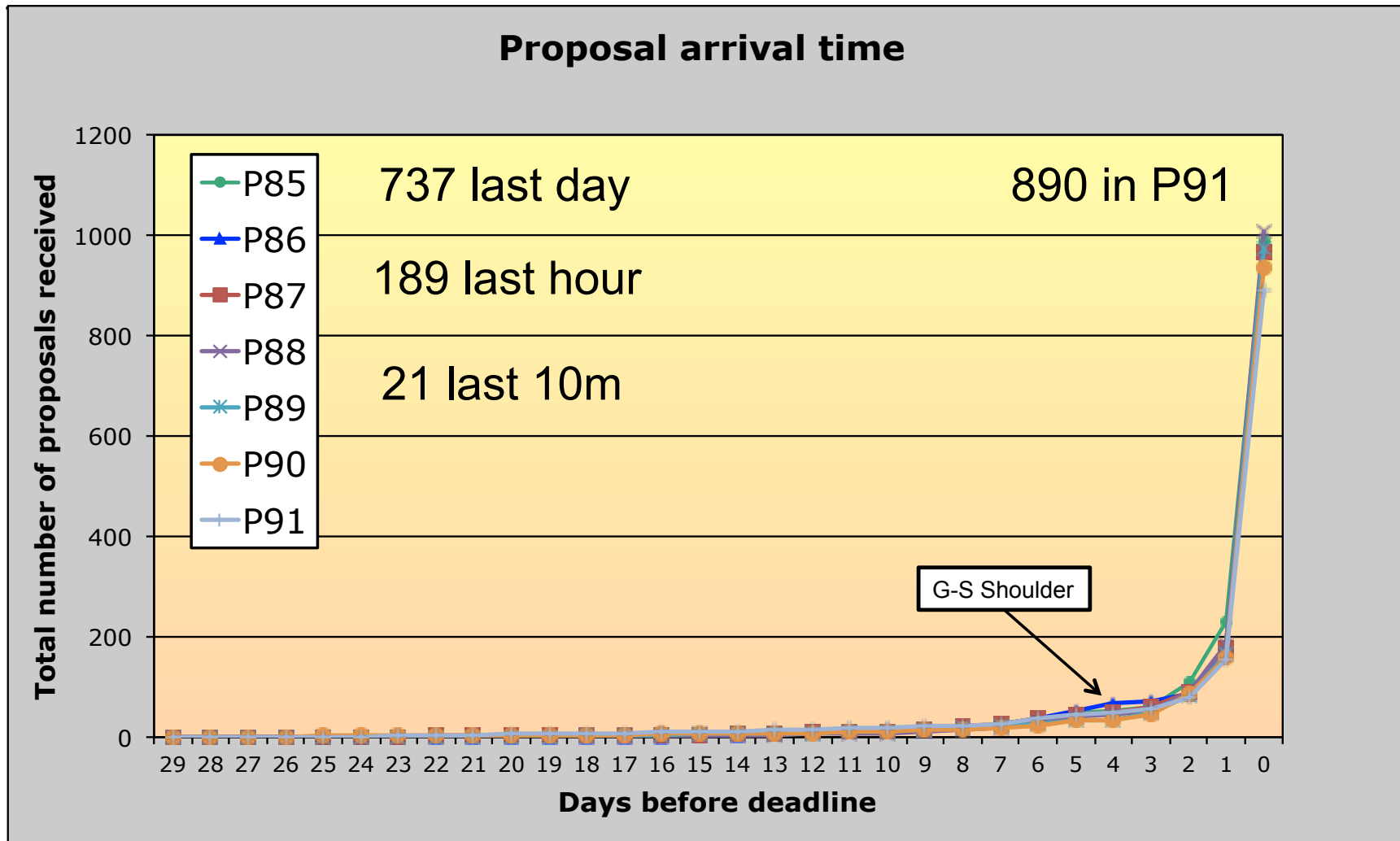


Don't – (2/2)

- ... include targets outside the RA range of the period...
 - even if you need only a couple of hours of observing time!
 - oversubscription of the few hours of visibility of a target at RA=18h between October and March can quickly reach several 10s
- ... include postage-stamp sized figures...
 - or figures that are not legible on an A4 printout
- ... submit your proposal at the last minute...
 - or even after the deadline (!)
 - errors/oversights are frequent in last-minute submissions



Astronomers are predictable & stressed!



90th OPC meeting, 21-25 May 2012

European Southern Observatory



DO! (1/4)

- ... read (and understand!) the relevant parts of the Call for Proposals, in particular:
 - Important recent changes
 - Foreseen changes in upcoming periods
 - Figures on expected RA distribution of proposed targets and time allocation of on-going Large Programmes
 - Section(s) on the instrument(s) that you are planning to use

- ... put your science into context
 - its relevance in the “big picture”
 - its potential impact
 - its timeliness
 - You are likely more expert in this area than the panel – explain why it’s exciting to your colleagues!

DO! (2/4)

- ... be specific about the expected outcome of the project
 - What will you measure ?
 - What physical processes are constrained by this measurement? How?
 - Will you compare your results to models? Are the models published? If not, how do they work, or how will they be developed?
- ... in case of resubmission of an unsuccessful proposal
 - take the feedback you have received into account
 - but don't assume the same panel will read your proposal!

DO! (3/4)

- ... carefully justify the required parameters of your observations
 - Choice of telescope/instrument
 - Signal-to-noise ratio
 - Spatial/spectral resolution
 - Size of the sample to be observed
 - Selection criteria of the proposed targets
- (Note: “statistical significance” needs to be qualified)

DO! (4/4)

- ... fill as accurately and completely as possible all required fields of the proposal form
- ... test-submit your proposal for technical compliance verification as early as possible

And once the time allocation process is complete...

- read your webletter(s) carefully
- email OPO if...
 - you do not understand why your proposal was unsuccessful & you want additional feedback
 - you feel that an error was made...
 - ... on technical grounds
 - ... science evaluations are not subject to revision!
 - Note: this is not an opportunity to rewrite your proposal!



Read your ESO Webletter!

Public

Intranet

The OPC feedback appears below the tables, at the bottom of this page. Please note that at the time when this feedback was written, the referees did not know the outcome of the time allocation process. Additional information about the latter, and about possible technical feasibility issues, is available on a run-by-run basis, following the links in the "Scheduling and Feasibility Notes" column of the tables. If you have any question about the OPC evaluation of your programme, or about your time allocation, please send an email to the Observing Programmes Office (opo@eso.org).

We are pleased to inform you that the following time was allocated to the runs listed in this table(s):

Service mode runs:

Status	Run ID	Tele.	Inst.	Hours	Priority	Scheduling and Feasibility Notes
✓	089.D-0198(A)	UT2	UVES	8.5	A	Run A: Ranking: This run has been ranked in the 1st quartile of all runs at this telescope. Pressure: ... Click here to read more

Service Mode Notes:

- A Phase 2 package needs to be submitted for each approved run in Service Mode.

Users having obtained time with the VLT must read carefully the [Service Mode Guidelines](#). APEX users should refer to the [APEX Phase 2 submission page](#) (username: esoproject, password: ga3ch1ng).

- Please check the [Phase 2 submission deadline](#).
- **Please note that late submission penalties apply.** If your Phase 2 material is submitted late without the express permission of ESO, your Priority Category will be reduced as follows: A to B, B to C, C to rejected.
- Additional information about Service Mode observing can be obtained from the webpages of the [User Support Department](#).

Important note for Service Mode observers

- ✗ the run was not allocated time
- ✓ the run was scheduled
- △ the decision is pending or, for Large Programmes, the run pertains to a future period.

<http://www.eso.org/>

AVG REQ | AVG SCH | AVG SCH PERC | ESO FRAC | ESO SuccRate | +

8.0.8



Resubmissions

- We all have had proposals rejected
- Address comments from a previous submission
 - be clear how you have improved your case
- Why did the panel not understand your proposal?
 - this is not only their fault
 - be more explicit, more direct, crystal clear
- Continuation of programmes
 - address the new goals
 - explain why you need a bigger sample
 - what has changed since the last proposal?
 - **Publish quickly, publish often!**