



# Writing Successful proposals

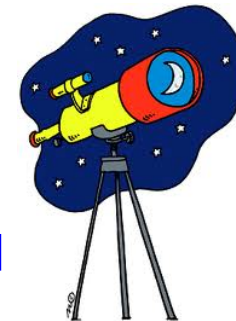
or

how to convert ideas into telescope time at ESO

Nando Patat



Observing Programmes Office – Head



*European Southern Observatory*





## For further reference

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### Selecting and Scheduling Observing Programmes at ESO

*F. Patat & G.A.J. Hussain, 2013, pp. 231-256*

***In Organizations, People and Strategies  
in Astronomy - Volume 2***

[http://venngeist.org/opsa2\\_toc.htm](http://venngeist.org/opsa2_toc.htm)



# Submit a proposal!



European Organisation for Astronomical Research in the Southern Hemisphere

091.D-0165

OBSERVING PROGRAMMES OFFICE • Karl-Schwarzschild-Straße 2 • D-85748 Garching bei München • e-mail: [opo@eso.org](mailto:opo@eso.org) • Tel.: +49 89 320 06473

APPLICATION FOR OBSERVING TIME

PERIOD: **91A**

**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.

1. Title	Category: <b>D-8</b>
Is Earth moving?	

**Writing a proposal is easy.**

**Writing a good proposal is not.**

**There is only one way to be sure you do not get telescope time: do not submit a proposal!**



# Call for Proposals (CfP)

## ■ Important document

- contains a lot of relevant information
- especially important for first-time users. Reading it is a must!
- contains many useful links to instrumentation and other useful information
- binding document, if proposal is approved



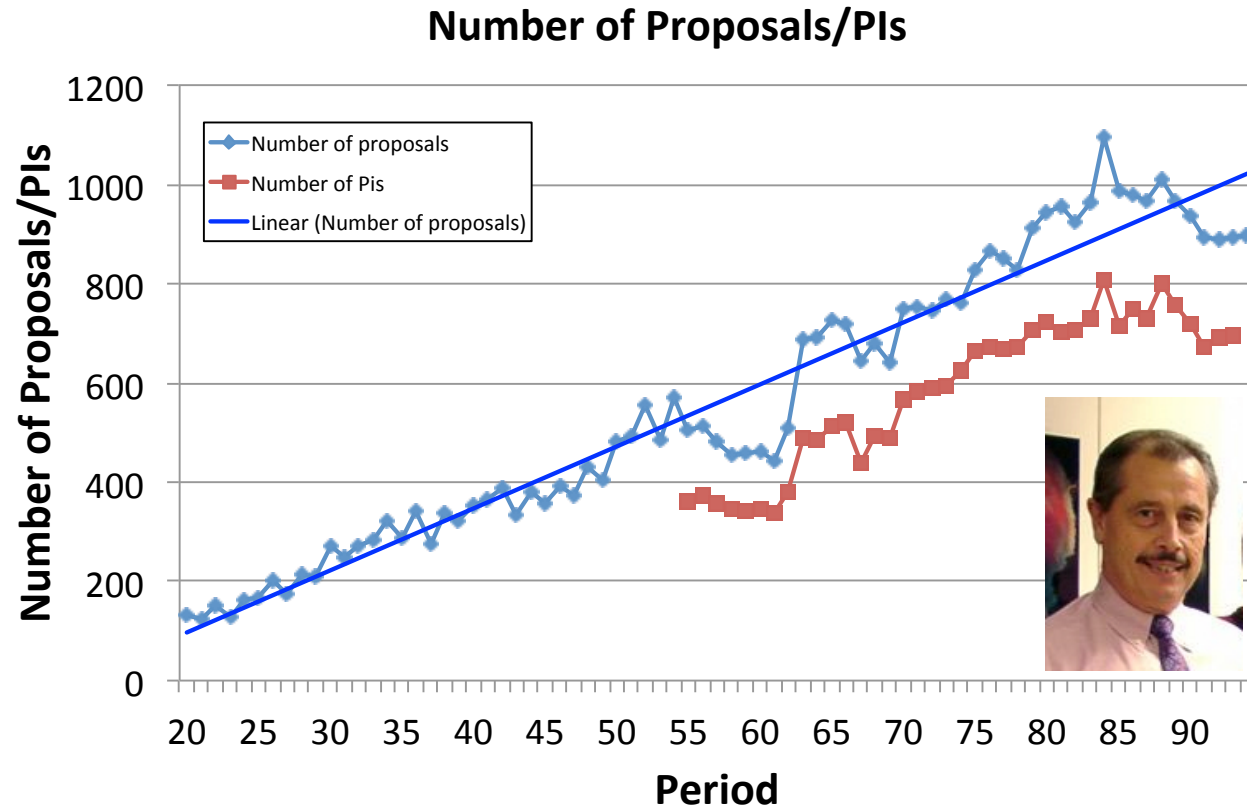
ESO Call for Proposals – P93  
Proposal Deadline: 01 October 2013, 12:00 noon CEST



# Setting the stage

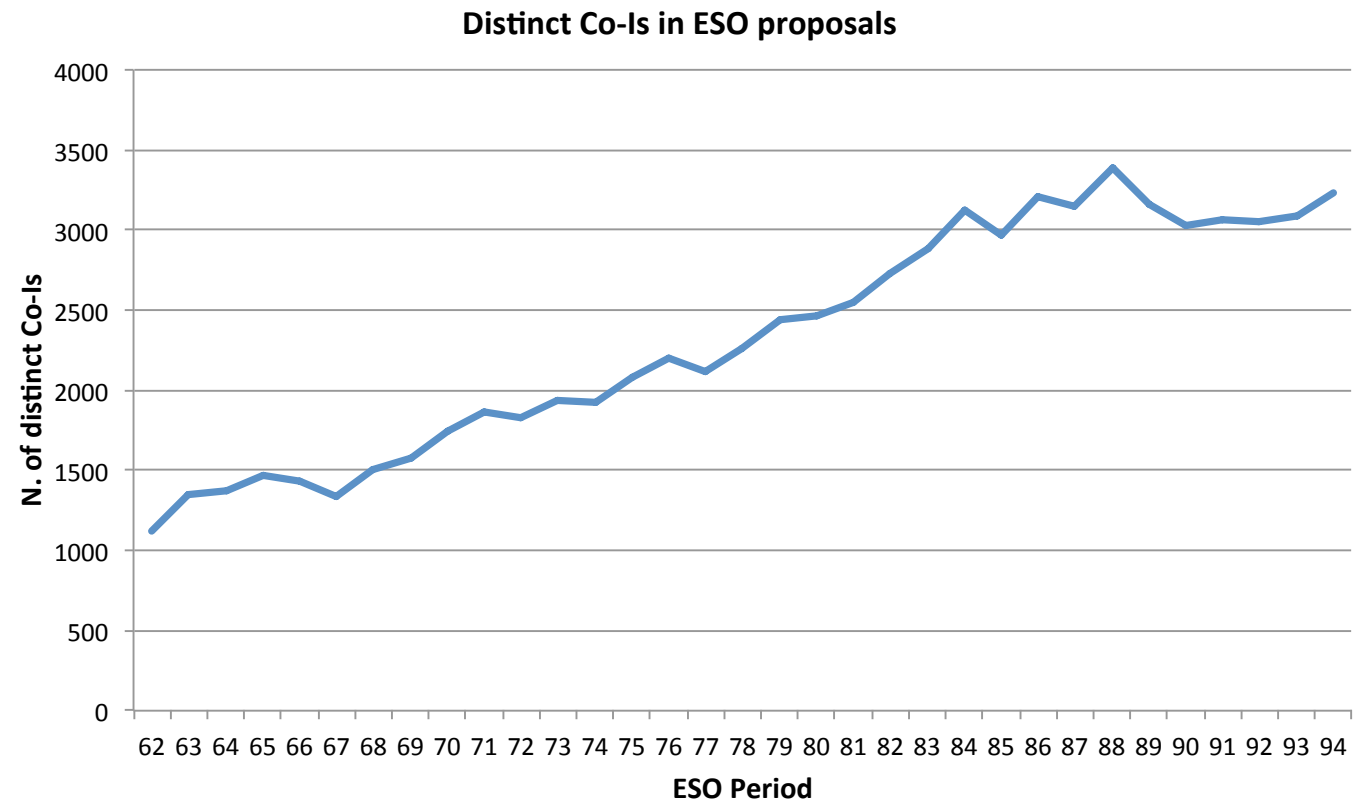
- ESO receives ~900 proposals/period
- ~700 distinct PIs
- ~3000 distinct co-Is from ~50 countries (IAU members ~10,000)
- ESO serves about 30% of the astronomical community world-wide
- The request is ~3200 nights/semester
- The available science time is ~1070 nights/semester
- A fraction (up to 10%) goes to Guaranteed Time Observations (GTO)

# Proposal submission stats





# ESO's community





# The ESO community (10 yrs)

N. proposals	14377	Prop. Success fraction	0.41
Distinct PIs	2965	N. Successful PIs	1909
Avg. proposals/PI	4.9	PI Success fraction	0.64
Distinct Cols	9155	N. Successful Cols	6587
Avg. proposals/Col	1.6	Col Success fraction	0.72
Distinct Applicants	9636	Total Time Req. (h)	269,890
PI/Col ratio	3.1	Total T. req. for ass. (h)	110,423.2
Avg. applicants density	0.49	Total Time Ass. (h)	97375.0
Pure Cols (never PI)	6671	Time reduction fraction	0.88
Pure PIs (never Col)	481	Time success fraction	0.36
PIs also Cols	2484	Avg. req. time/proposal	18.8h
N. Succ. proposals	5947	Avg. ass. time/proposal	16.4h

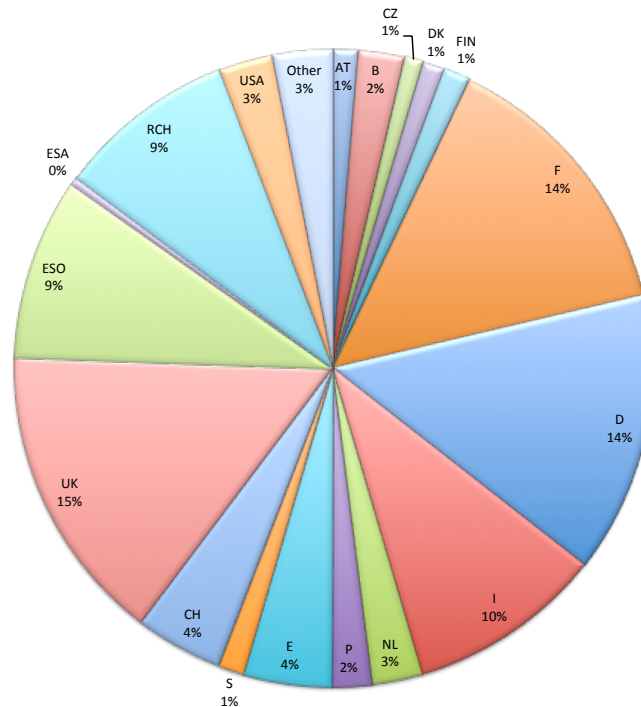




# Time request per Country

P94

Average time request per semester/country



Country	Req. Time ( n )	(%)
AT	37.1	1.3
B	86.3	2.9
CZ	22.0	0.8
DK	38.6	1.3
FIN	27.4	0.9
F	307.4	10.5
D	342.9	11.7
I	205.6	7.0
NL	92.4	3.2
P	41.9	1.4
E	108.2	3.7
S	34.0	1.2
CH	168.3	5.8
UK	554.1	18.9
CL	330.3	11.3
ESO	224.8	7.7
OTHER	305.5	10.4

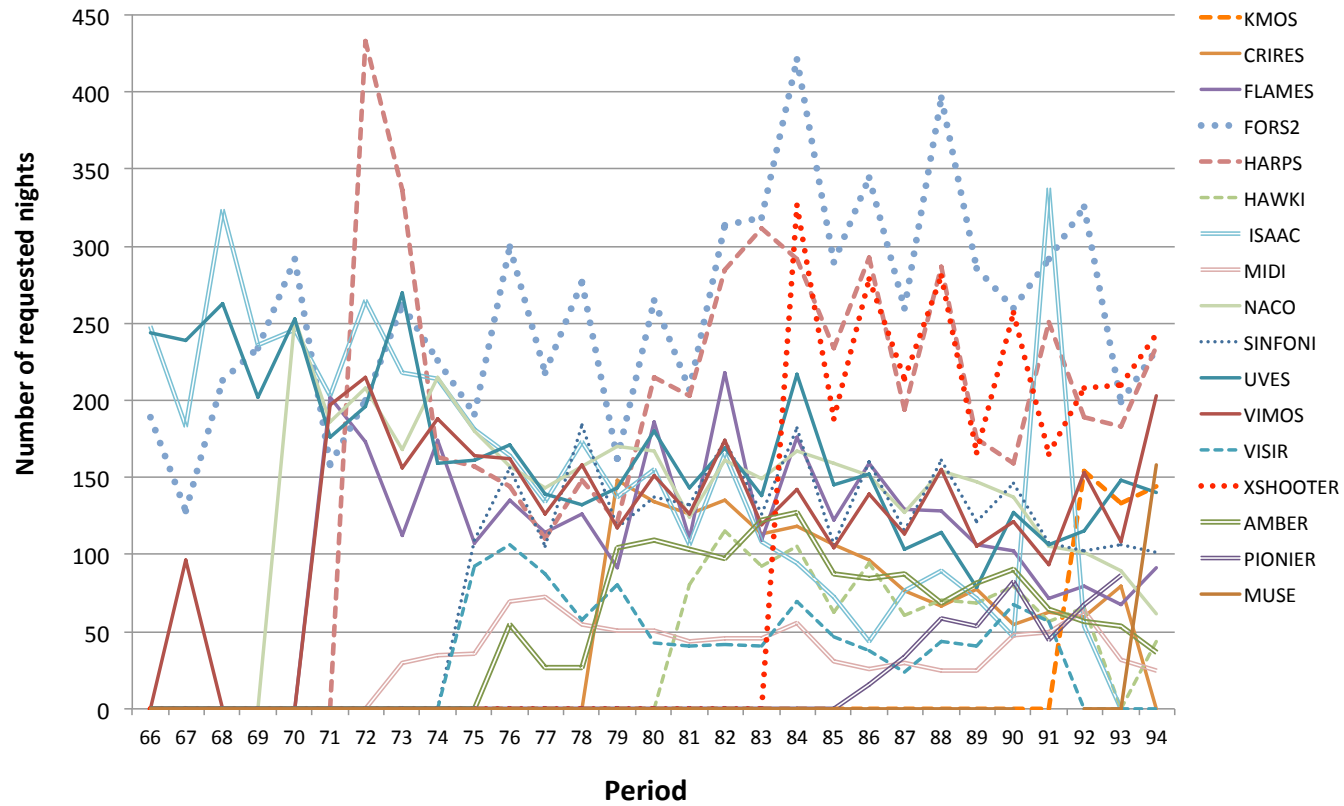
Total request in P94: 2926.8 nights

Prague - 14 April 2014





# Instrument Demand



Prague - 14 April 2014



# Getting telescope time is hard

- Pressure factor typically high
  - typical oversubscription for ESO telescopes is  $>3$ 
    - often reaching 5 and in certain periods/RA ranges 8 or higher
  - Large Programmes have an acceptance rate of about 20% or less
  - Pressure on ToO proposals is extremely high
    - GRBs, supernovae, novae, stellar occultations by TNOs, micro-lensing, other transient phenomena



# Writing a successful proposal

- Make your science understandable
  - make it as simple as possible for the panel to understand your science and proposal
    - remember there are broad topical panels
  - get to the point immediately
  - be explicit, do not assume that the panel will work out what you meant
  - it is most likely that your proposal will be the 20<sup>th</sup> proposal to be read during that day ...
  - if the referee does not understand what you say you have lost
    - there is no possibility to check the literature



# Writing a proposal/1

- Need to have a good idea (*“whenever you think you had a great idea, either somebody else had it already or it is a bad idea”*).
- Need to explain it very clearly. What is THE question? What will we learn by answering it?
- Need to convince your peers your idea is good, it will lead somewhere and it is worth being pursued



## Writing a proposal/2

- Need to justify the request for telescope resources (time/instrument/conditions)
- Need to demonstrate what you propose is feasible
- Be aware that you are not the only applicant and that the referees will have *maaaany* proposals to read (50 to 70 each!)



# Writing an exciting proposal

## ■ Make your science understandable

- avoid jargon
  - expressions in your field may not be used in others
- avoid acronyms, which may not be clear to everybody
  - what was  $\epsilon$  Eri Ba again?
  - $H_0$  may be understood by most,  $w'$  needs explanation
  - if you need acronyms or special terms explain them
- avoid complicated language
  - use simple English
  - should be correct English – have (senior) colleagues or collaborators read your proposal



# The Abstract is important

- Write your abstract first
  - this is the one paragraph that is guaranteed to be read by everybody
  - you have to be able to summarise the excitement in one paragraph
  - revisit your abstract several times during the writing and improve it





# 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
  - there is a good chance one referee will pick up on any inconsistencies
  - exposure times have to make sense, use the ETCs
  - figures (tables) should help the text and be relevant



# Overheads and Exposure Times

- They can be verified using the Phase 2 Proposal Preparation Tool (P2PP), by preparing test Observing Blocks (OBs). This is the most accurate way of deriving the execution times that need to be entered in the proposal (and not the exposure times!!!)
- Exposure times can be derived from the Exposure Time Calculators (ETC), provided for each instrument.

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



# Helpful tips

- Take the instructions seriously
  - any proposal, which does not provide all requested information, damages itself
  - read the relevant parts of the Call for Proposals

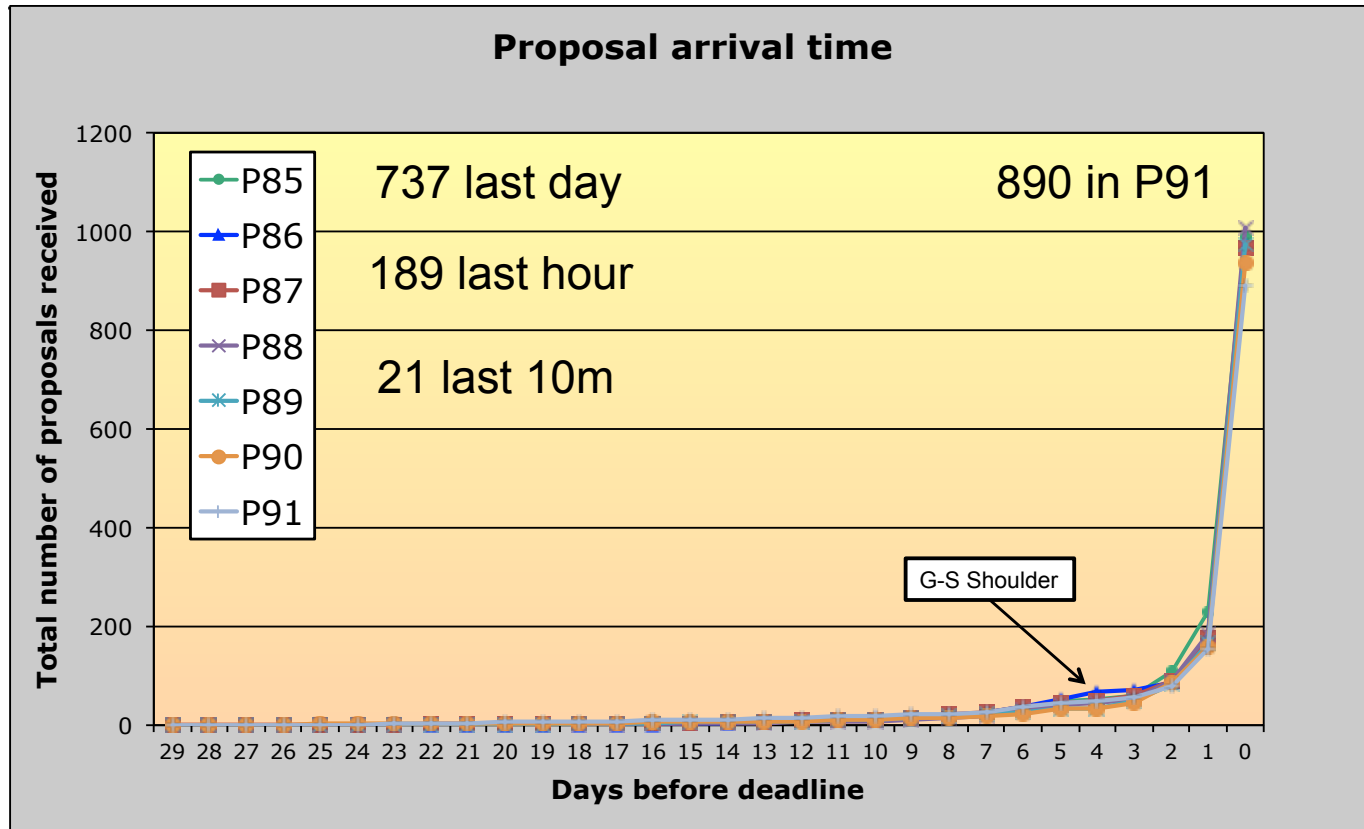


# Don't

- ... include mostly/only targets outside the nominal 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 post-stamp size figures...
  - ... or any other type of figures that are not readily legible on an A4-size printout of your proposal
- ... submit your proposal at the last minute...
  - ... or even after the deadline (!) ...
  - ... errors/oversights are frequent in last-minute submissions



# Don't wait for the last minute...



90th OPC meeting, 21-25 May 2012





# Don't

- ... submit more proposals (as PI or co-I) than you can reasonably deal with in a semester...
  - ... this is not a lottery...
  - ... referees may legitimately be concerned that you will not be able to bring any project to completion
- ... include co-I's in the proposers' list without their explicit agreement
- ... falsify parameters in the proposal form so as to get unsupported configurations through the proposal verification
  - Exceptions with compelling scientific justifications may be possible in a "clean" way: seek advice from OPO well ahead of submission deadline
- ... plagiarize proposals which you had access to as part of your work of support astronomer



# DO!

- ... 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

Keep in mind that you are applying for time at one of the most demanded scientific facilities on the planet



# DO!

- ... 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, so that its relevance for the broader picture, its potential impact, and its timeliness can be appreciated by referees who work in the same general area of astrophysics but who are not experts of the specific subject of your proposal
  - Remember: probably no one has more expertise of your science than yourself!





# DO!

- ... be specific about the expected outcome of the project
  - What is the quantitative information about the target that should be obtained?
  - Which physical processes will this information constrain, and how?
  - Will the data be compared to theoretical models? Do these models already exist? If not, when and how will they be developed?
- ... in case of resubmission of an unsuccessful proposal from a previous period, take into account the feedback that you received...
  - ... but don't take for granted that this guarantees success!



# DO!

- ... 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!

- ... 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 carefully, and understand, your webletter(s)
- ... send queries for further information to OPO...
  - ... if you do not understand why your proposal was unsuccessful...
  - ... if you wish more feedback information...
  - ... if you feel that an error was made...
    - ... on technical ground:
    - ... science evaluations are not subject to revision!
    - Note: this is not an opportunity to rewrite your proposal!



# Resubmissions/1

- We all have had proposals rejected
  - and yes, sometimes it really hurts
- Address comments from a previous submission
  - be clear what has changed and how the proposal has improved
- Why did the panel not understand your proposal?
  - this is not only their fault
  - be more explicit, more direct, crystal clear



# Resubmissions/2

- Continuation of programmes
  - address the new goals
  - explain why you need a bigger sample
  - what has changed since the last proposal?



# What makes a proposal successful?

## ■ Exciting science

- providing a clear progress in our understanding of some phenomenon

## ■ A neat idea

- unusual method, new idea, new approach, unique observation or experiment

## ■ Clear language

- presentation of an exciting story, which is interesting for many people
- cover all questions somebody may have
- information to the point



# What makes a proposal successful?

- A consistent story
  - the proposal is complete and provides all information
  - quantitative arguments for the amount of time requested
- Good Luck!



# ESO Archive

## ■ The ESO data archive

- is a rich source of excellent data
- abstracts of previous proposals available
- data public one year after they have been delivered to the PI
- great way to compete with your competitor, if they got observing time
- easy retrieval and selection of calibration data





# Get involved

- Participate in OPC and Panels (come and talk to me, or write to [opo@eso.org](mailto:opo@eso.org))
- Participate in other ESO activities
  - get to know the organisation better
  - active interactions with ESO people
- Have a lively scientific exchange with the (European) astronomical community
  - conferences, workshops
  - regularly publish your results

# Earth does not move<sup>★</sup>

## All stars show a yearly oscillation

F. Patat<sup>1</sup>, S. Cristiani<sup>1</sup>, E. Hoppe<sup>1</sup>, and G. Hussain<sup>1</sup>

European Organization for Astronomical Research in the Southern Hemisphere (ESO), Karl-Schwarzschild-Str. 2, 85748, Garching b. München, Germany e-mail: fpatat@eso.org

Received August 9, 2013; accepted...

### ABSTRACT

*Aims.* In this paper we provide evidence that Earth is fixed in space and does not move.

*Methods.* We obtained high-resolution spectroscopy of a sample of more than 1000 stars on a time range of about 5 years.

*Results.* All stars show a periodic, annual oscillation with an amplitude of  $\pm 30 \text{ km}^{-1}$ .

*Conclusions.* Contrarily to what is generally assumed, Earth does not move. On the contrary, the rest of the universe shows periodic velocity oscillation.

**Key words.** Earth: general; Cosmology: general; Revolutions: anti-Copernican

*Asking the right questions, having good ideas and getting  
telescope time is sometimes not sufficient ;-)*



# Seven years in ESO

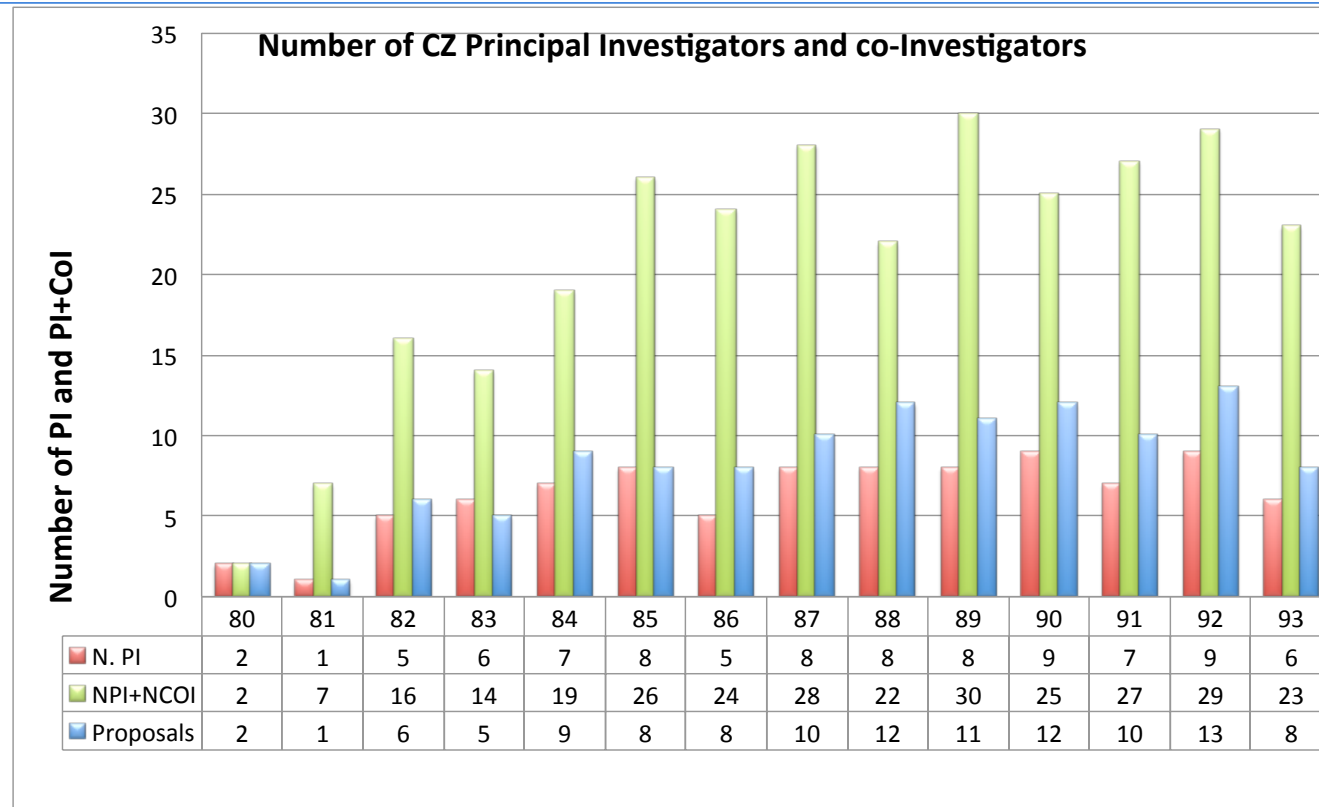
115 proposals submitted by CZ PIs

	Requested	Scheduled	Success
VLT	147.0	39.8	0.27
La Silla	215.9	46.0	0.21
APEX	44.0	16.5	0.38
VLTi	2.8	0.0	0.00
<b>TOTAL</b>	<b>409.7 (1.1%)</b>	<b>102.3 (0.8%)</b>	<b>0.25</b>
<b>ALL Members</b>	<b>37811.7</b>	<b>12917.2</b>	<b>0.34</b>

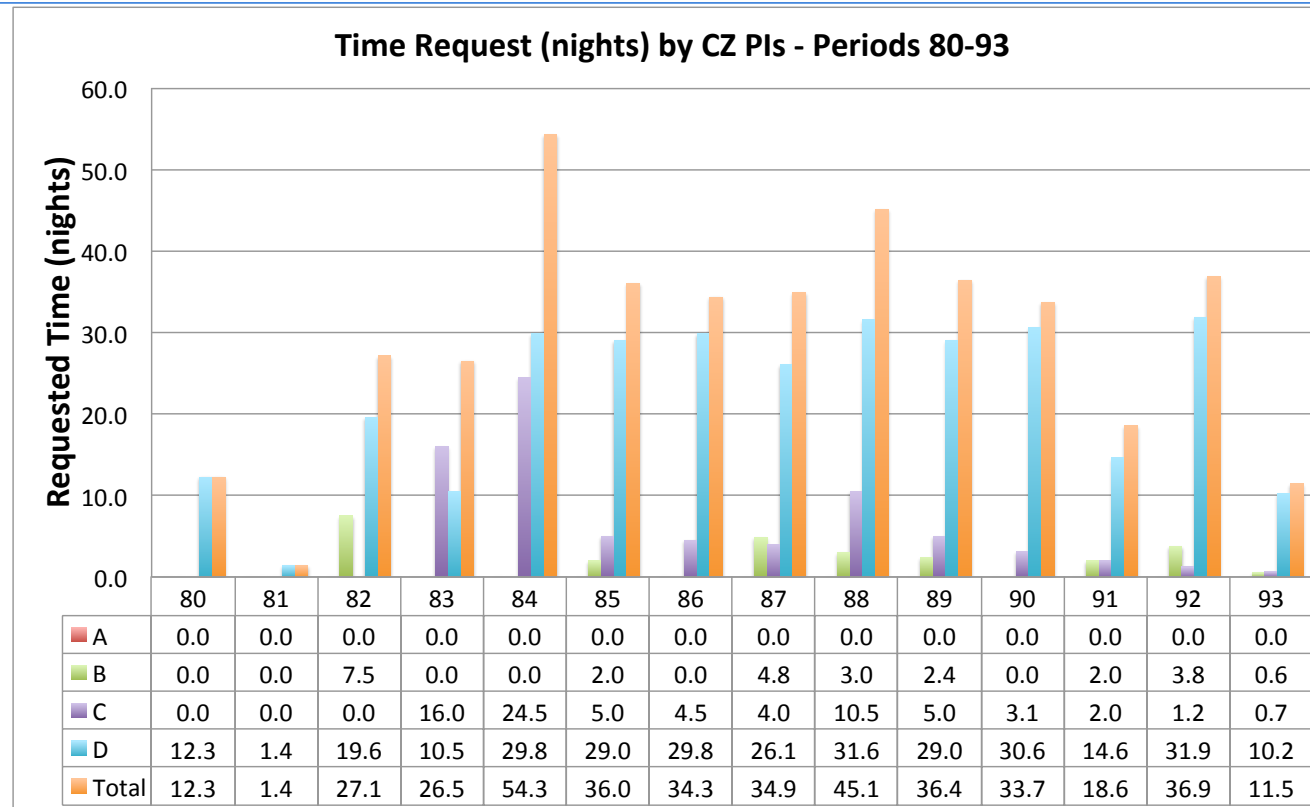
~1% of ESO income



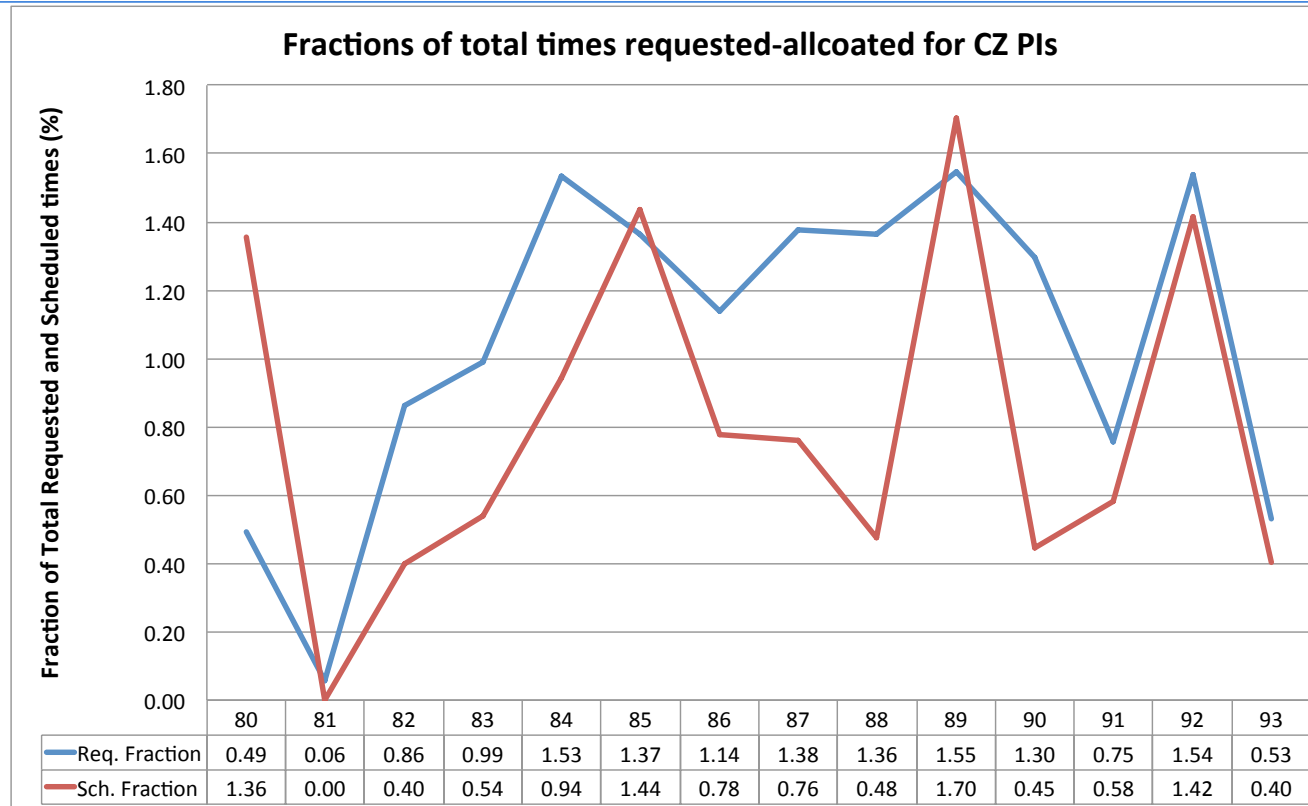
# The Czech Community



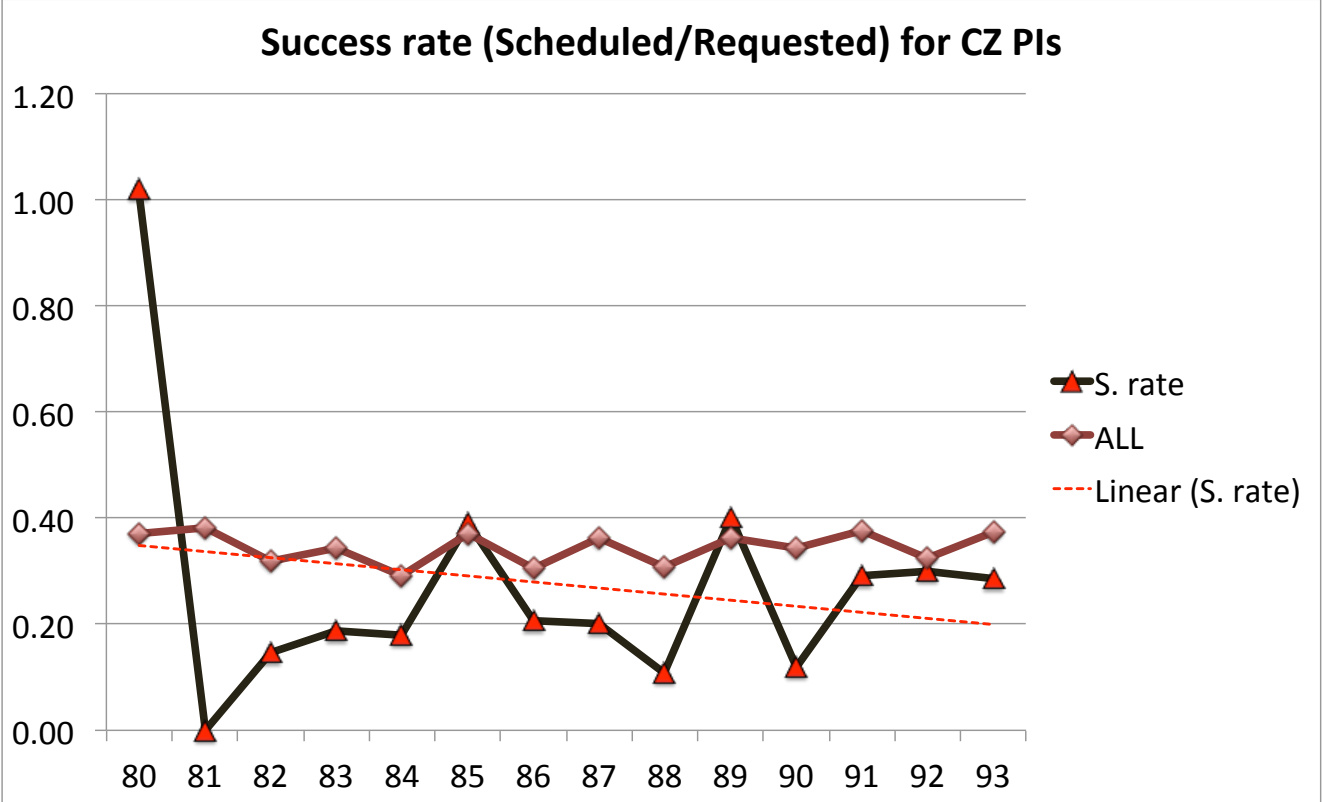
# CZ Time Request by Category



# Fractions of total time

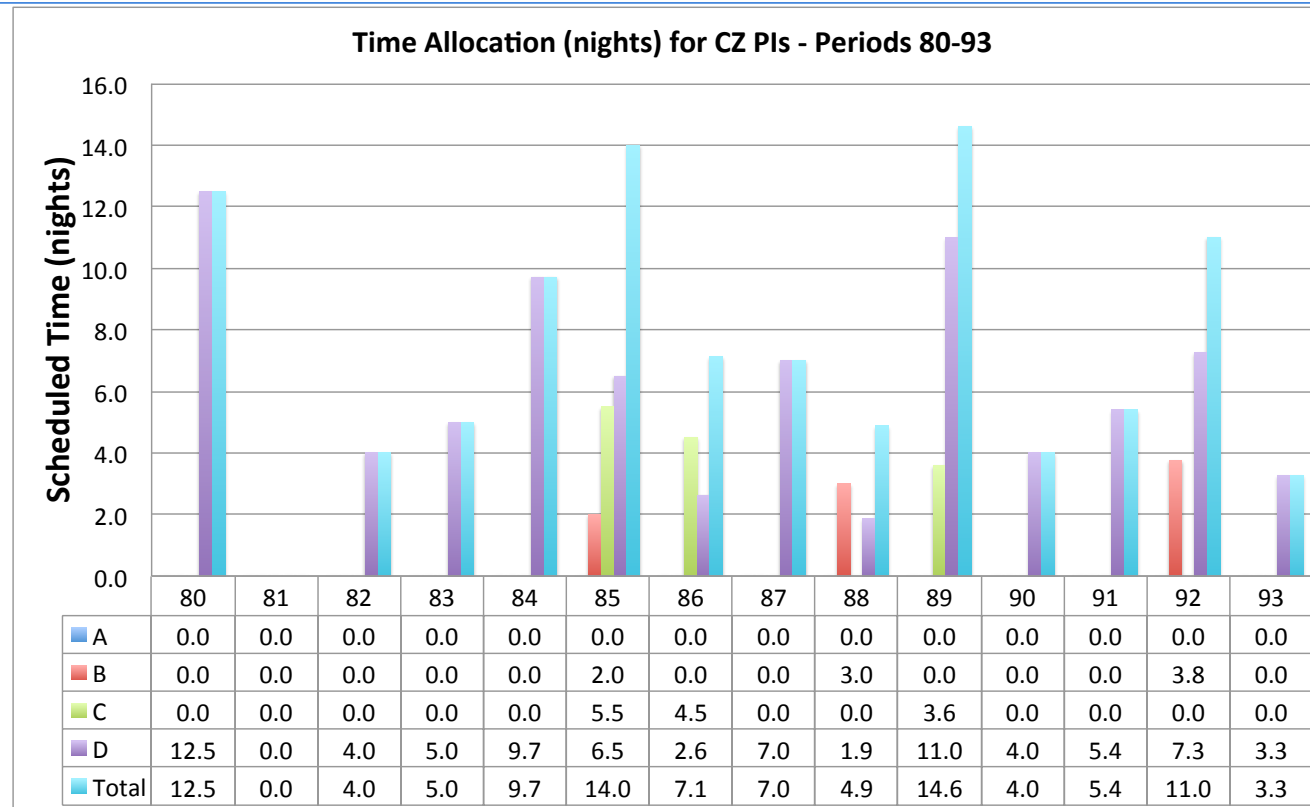


# Success Rate





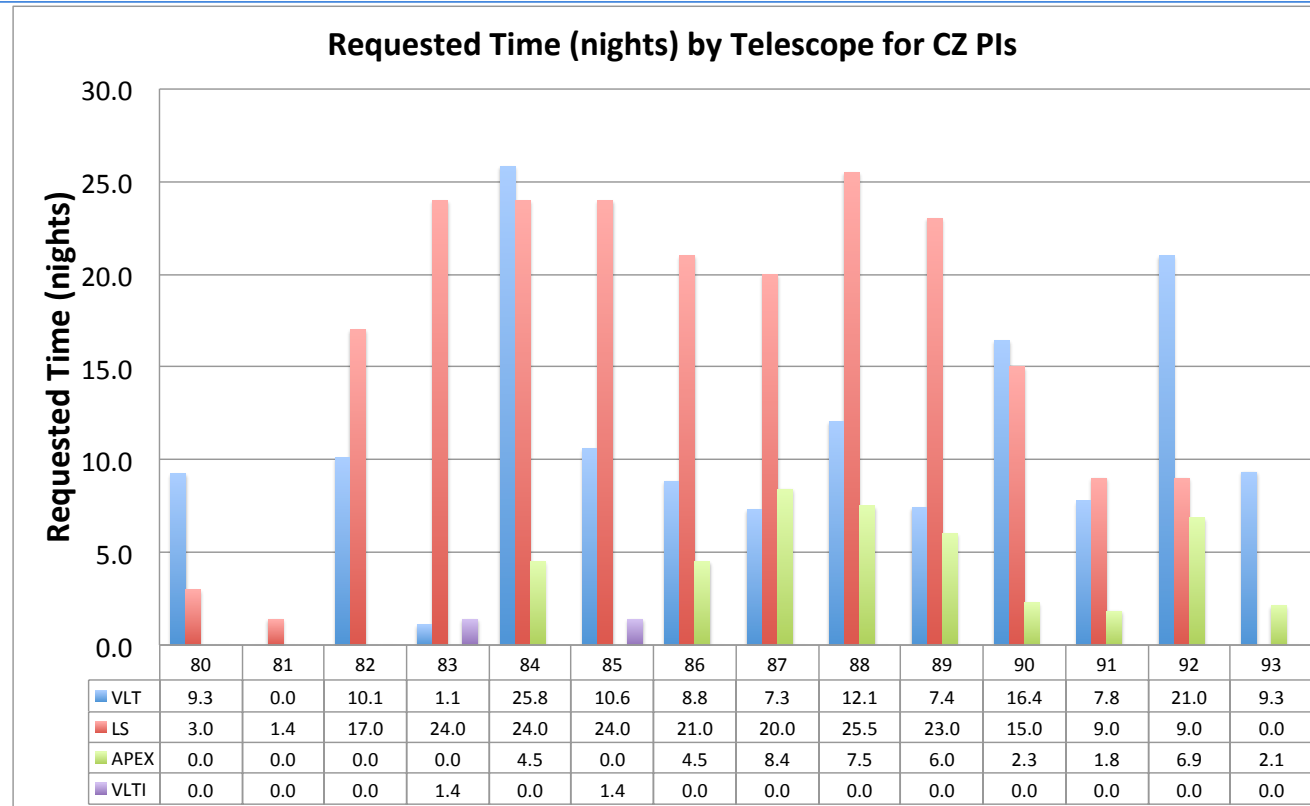
# CZ Time Allocation





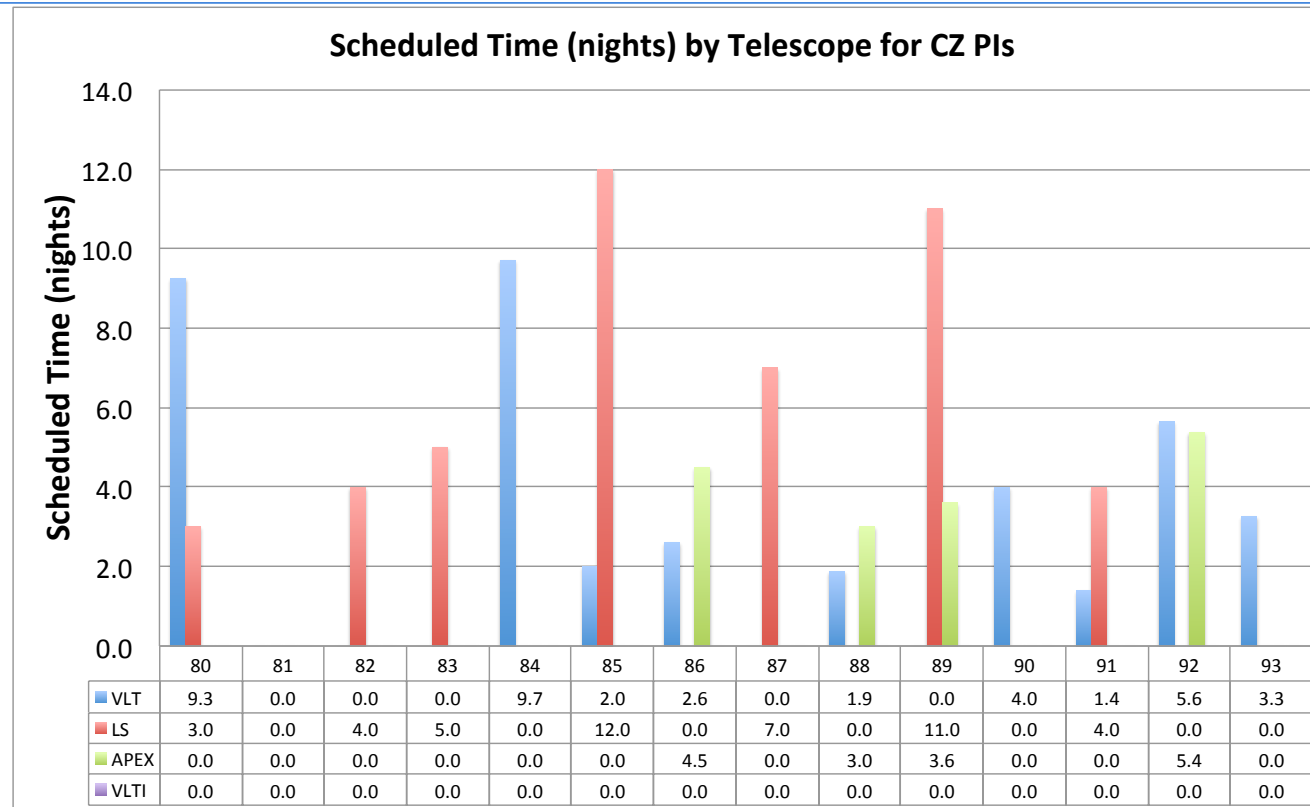


# Request by Telescope



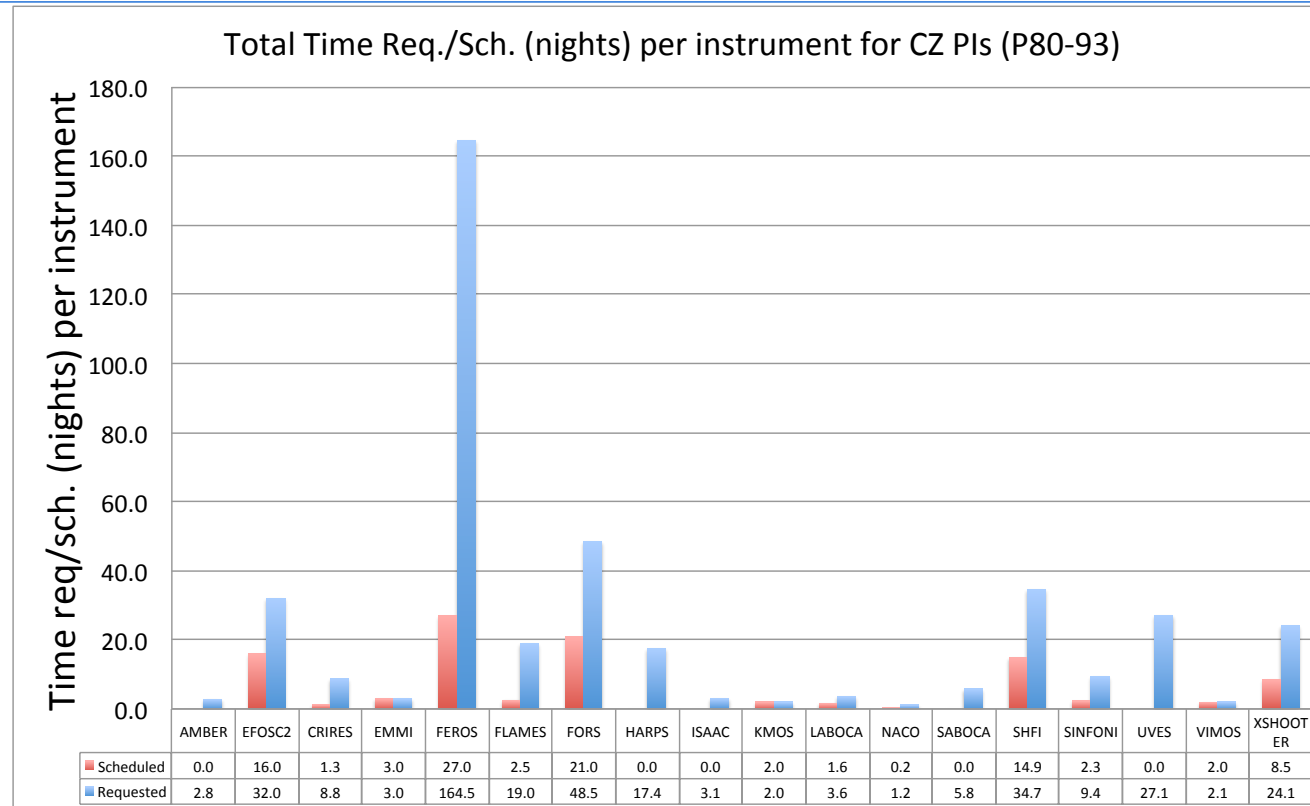


# Allocation by Telescope





# Time by instrument





# Now go and apply for time!



**ESO Call for Proposals – P93**  
Proposal Deadline: 01 October 2013, 12:00 noon CEST

**Děkuji!**