



Writing a Successful Proposal

Dimitri Gadotti & Nando Patat

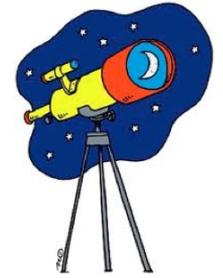
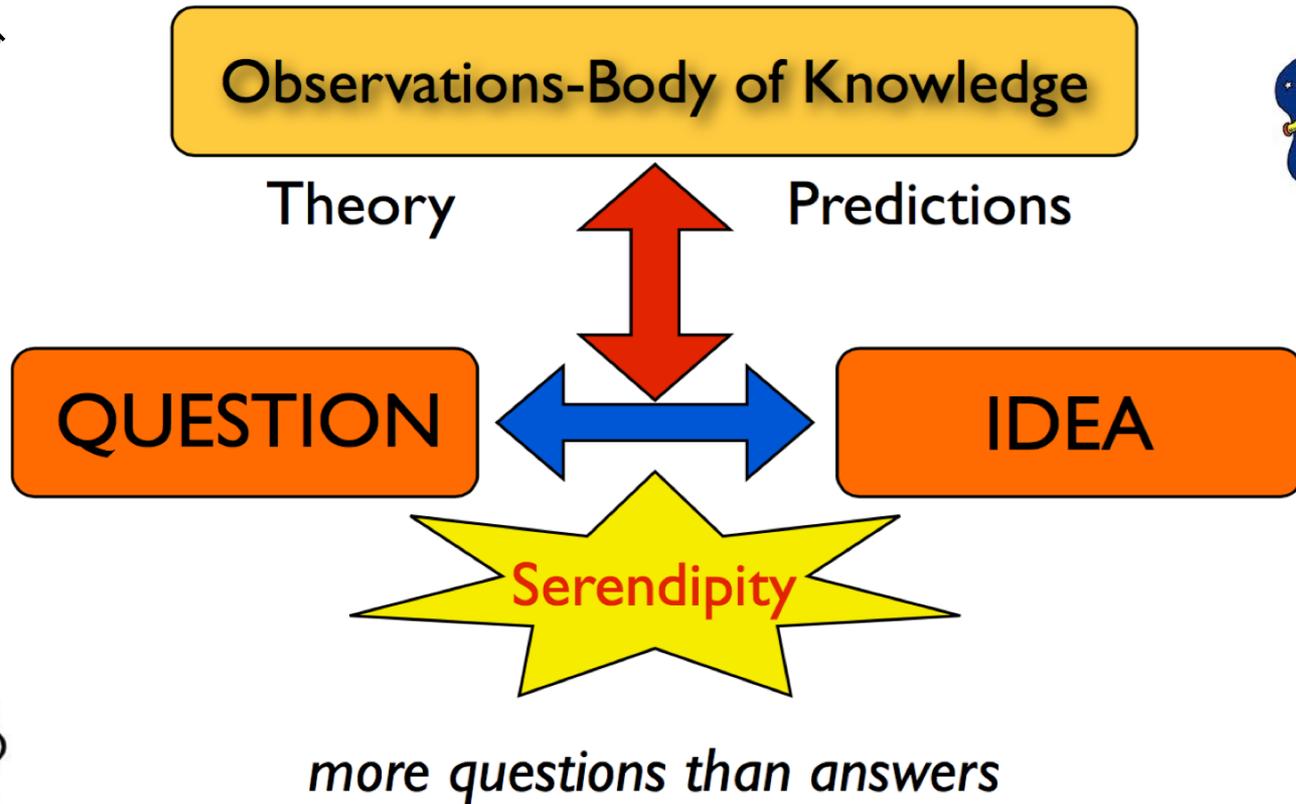
Observing Programmes Office



LPO Users Workshop, March 12-14 2018

From ideas to proposals

I will not teach you



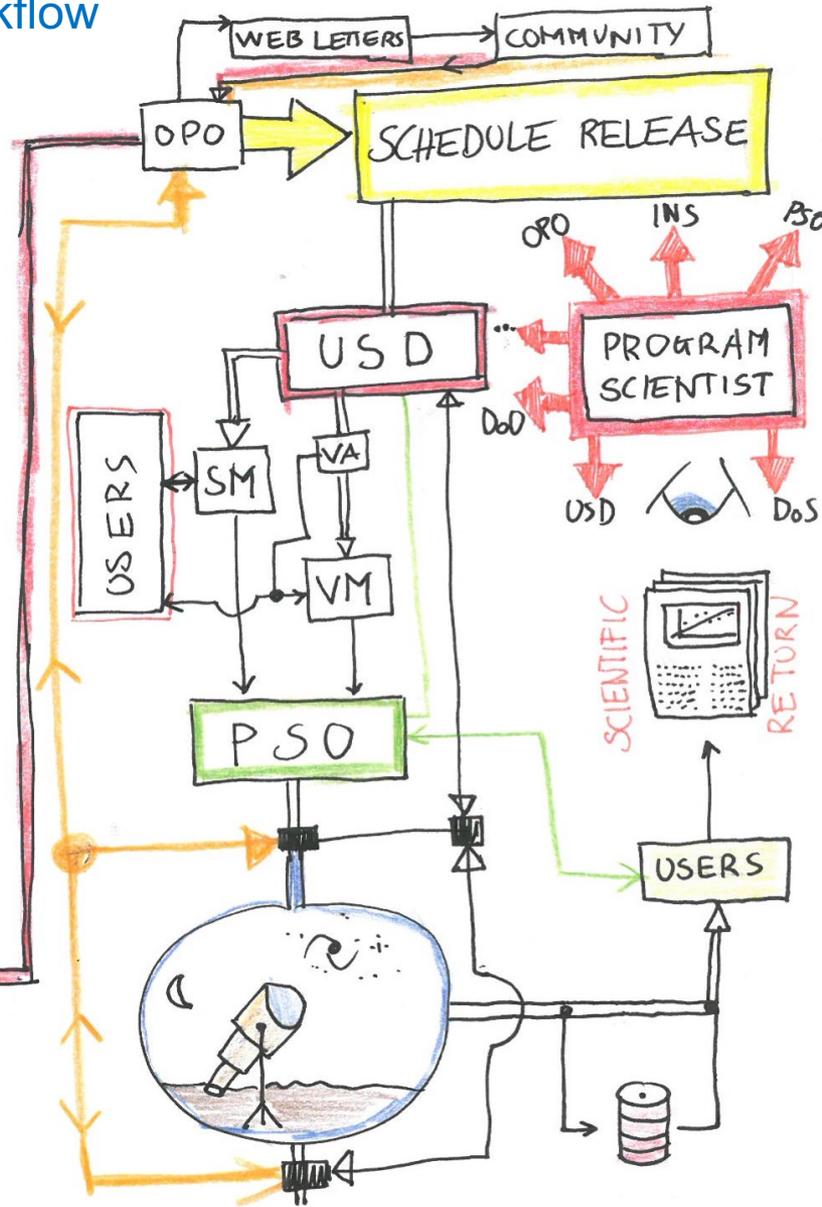
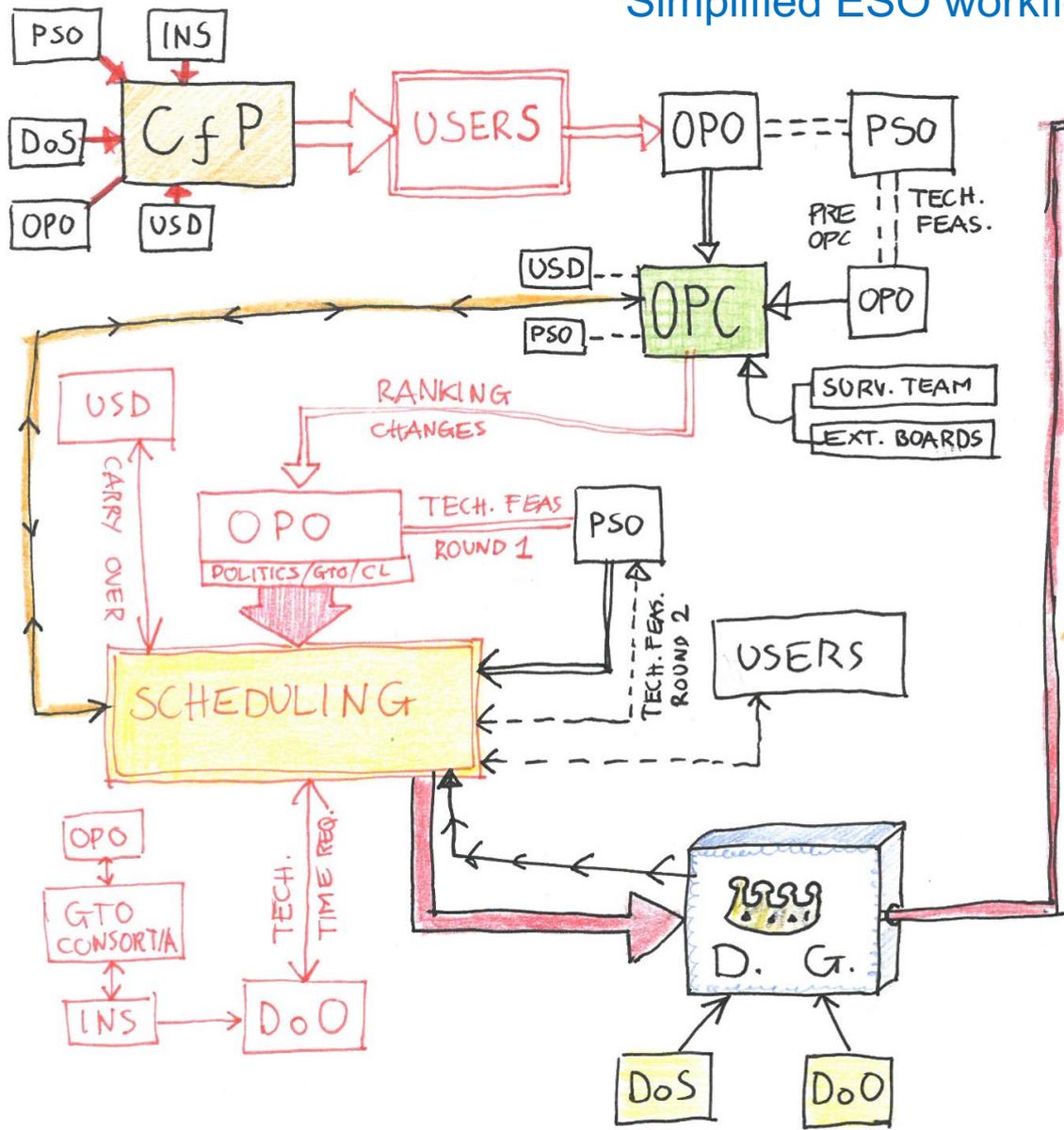
Example case... (*eppur si muove*)



The Observing Programmes Office

- OPO is in charge of allocating the observing time and scheduling all ESO telescopes.
- It releases the Call for Proposals twice a year.
- It recruits and convenes the Observing Programmes Committee.
- It produces the telescope schedule, which is then presented to the Director General.
- It communicates the results to the community and acts as intermediary between the users and the OPC.
- It manages the Director General Discretionary Time (DDT).
- It provides time allocation statistics to Governing Bodies and high-level officials in the Community.

Simplified ESO workflow



N. PATAT, III-MMXIII



Generalities/1

- ESO calls for proposals **two times a year**
- Proposal submission is open in September (for observations in April to September) and in March (for observations in October to March [following year])
- In the ESO jargon the observing semesters are called **PERIODS**. Next useful period for proposal submission is **P102** (Oct 1st 2018 to Mar 31st 2019)
- Proposal preparation and submission is indicated as **Phase 1**
- It is possible to apply for **Service Mode** (SM: queue) and/or **Visitor Mode** (VM: classical)

Generalities/2

- The principal investigator (PI) submits the proposal, possibly with a number of co-investigators (co-Is)
- The PI's affiliation is what counts for the countries time share statistics
- A proposal is considered as a non-member state proposal if more than 2/3 of the co-Is are not affiliated to an ESO member state (MS)
- All expenses (travel and lodging) will be covered by ESO for successful MS applicants. No extra funds are provided (data reduction, students)

This is the right time to start!

- Call for proposal for P102 will be open on Feb 28, 2018
- Deadline: **Mar 28th 12:00 CEST**

Starting point:

<http://www.eso.org/sci/observing/phase1.html>

Useful information:

<http://www.eso.org/sci/observing/phase1/p102/proposalsopen.html>

Further information

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

mailto: opo@eso.org

mailto: esoform@eso.org



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 • 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: D-8

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!

The 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
- It is the “contract” between ESO and the successful applicants



ESO Call for Proposals – P102
Proposal Deadline: 28 March 2018, 12:00 noon CEST



The Call for Proposals/2

■ Everybody **MUST** read

I	Phase 1 Instructions	1
1	ESO Proposals Invited	1
1.1	Important recent changes (since Periods 99 and 100)	2
1.2	Important reminders	7
1.3	Foreseen changes in the upcoming Periods	12
2	Getting Started	13
2.1	Exposure Time Calculators	14
2.2	The ESIFORM proposal package	14
2.2.1	ESIFORM: Important notes	14
2.3	Proposal Submission	15

Download/upload is done via the User Portal:

www.eso.org/UserPortal





The User Portal

Science Users Information > ESO User Portal > Home Page

ESO User Portal

Privileged Actions

Report/Comment Cards

Visas Management

Referee DDT

Observatory View

Nightlog tool

Request a Special Run

Account Configuration

Home Page

ESO



Phase 1

Download the proposal form

Submit an observing proposal

Check the time allocation information



Proposal Types

II	Proposal Types, Policies, and Procedures	17
4	Proposal Types	17
4.1	Normal Programmes	18
4.2	Monitoring Programmes	18
4.3	Large Programmes	19
4.4	Target of Opportunity	20
4.4.1	ToO using the Rapid Response Mode (RRM) system	21
4.5	Guaranteed Time Observations	22
4.6	Proposals for Calibration Programmes	23
4.7	Director’s Discretionary Time	24
4.8	Host State Proposals	24
4.9	Non-Member State Proposals	24
4.10	VLT-XMM proposals	25



6	Policy Summary	29
6.1	Who may submit, time allocation policies	29
6.2	Requesting use of non-standard observing configurations	30
6.3	Policy regarding offered/available observing configurations	30
6.4	Observing programme execution	30
	6.4.1 Service Mode run execution	30
6.5	Phase 2 Service Mode policy: constraints and targets are binding	31
6.6	Pre-imaging runs	31
6.7	Data rights, archiving, data distribution	31
6.8	Publication of ESO telescope results	32
6.9	Press Releases	32

Important links/1

- The CfP is the starting point of proposal preparation. It provides links to dynamically updated pages. It is a good habit to start from the IMPORTANT LINKS:

<http://www.eso.org/sci/observing/phase1/p102/links.html>

Information on Instruments & Facilities

La Silla Paranal Observatory	Homepage for the La Silla and Paranal Observatory facilities
Instrumentation and Facilities in Period 101	Links to technical information for Period 101
Instruments available in Period 101	Instruments and facilities in Period 101
Recent changes for Period 101	Important changes for Period 101
Foreseen changes for next Periods	Planned changes for future Periods
➡ The APEX telescope	APEX Homepage
➡ Observing with APEX	Applying for time on APEX facilities
Exposure time calculators (ETCs)	ETCs for Paranal and La Silla instrumentation

Important links/2

Proposal Preparation

[Observing conditions](#)

Observing constraint definitions for Phase 1 and 2

[Overheads table for Paranal instrumentation](#)

Guidelines for calculating overheads

[Telescope demand and pressure](#)

Telescope demand & large programme commitment

[Guaranteed Time Observations](#)

GTO targets protected against duplication

[Public Survey Targets page](#)

Public survey fields protected against duplication

[OPC categories and sub-categories](#)

OPC scientific category definitions

[Proposal preparation tools and services](#)

Ephemerides to determine when objects are best observed, links to weather pages and useful data catalogues and archives

[The ESOFORM package](#)

Information on the ESOFORM proposal package

[Late Breaking News](#)

Information as it becomes available after the release of the Call for Proposals

Useful information

[Paranal Site Details](#)

Paranal Site, climate and seismic information

[VLT UT Performance](#)

VLT Unit telescope performance, guiding and tracking

[Visibility on the VLT](#)

Sky accessibility and vignetting by neighbouring telescopes on the VLT

[Data Products](#)

Data Products and Phase 3

[Calibration Plans and Pipelines](#)

Calibration plans and Pipelines for VLT/I instrumentation

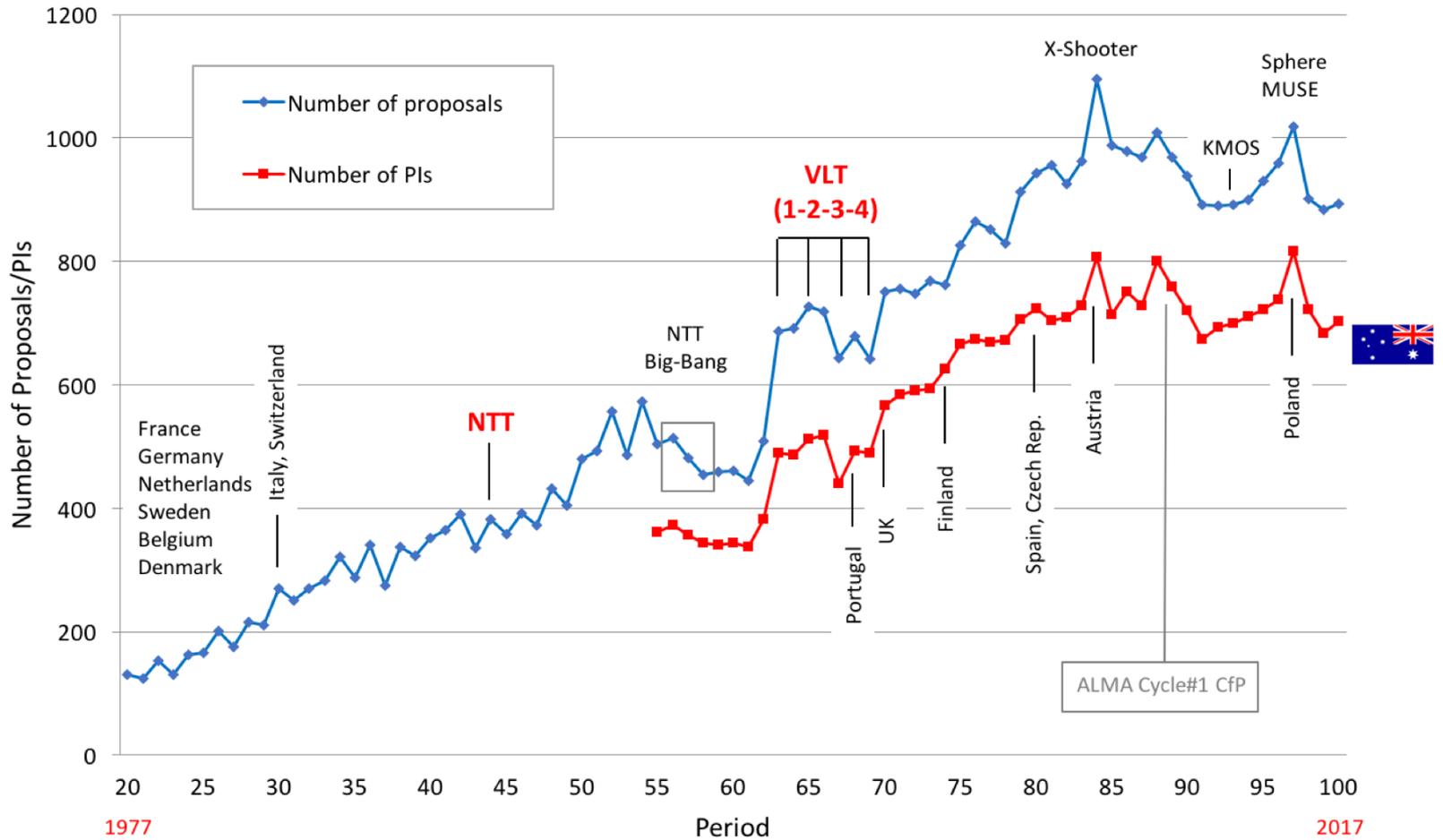
[VLT-I Configurations Overview](#)

New Baselines in P101

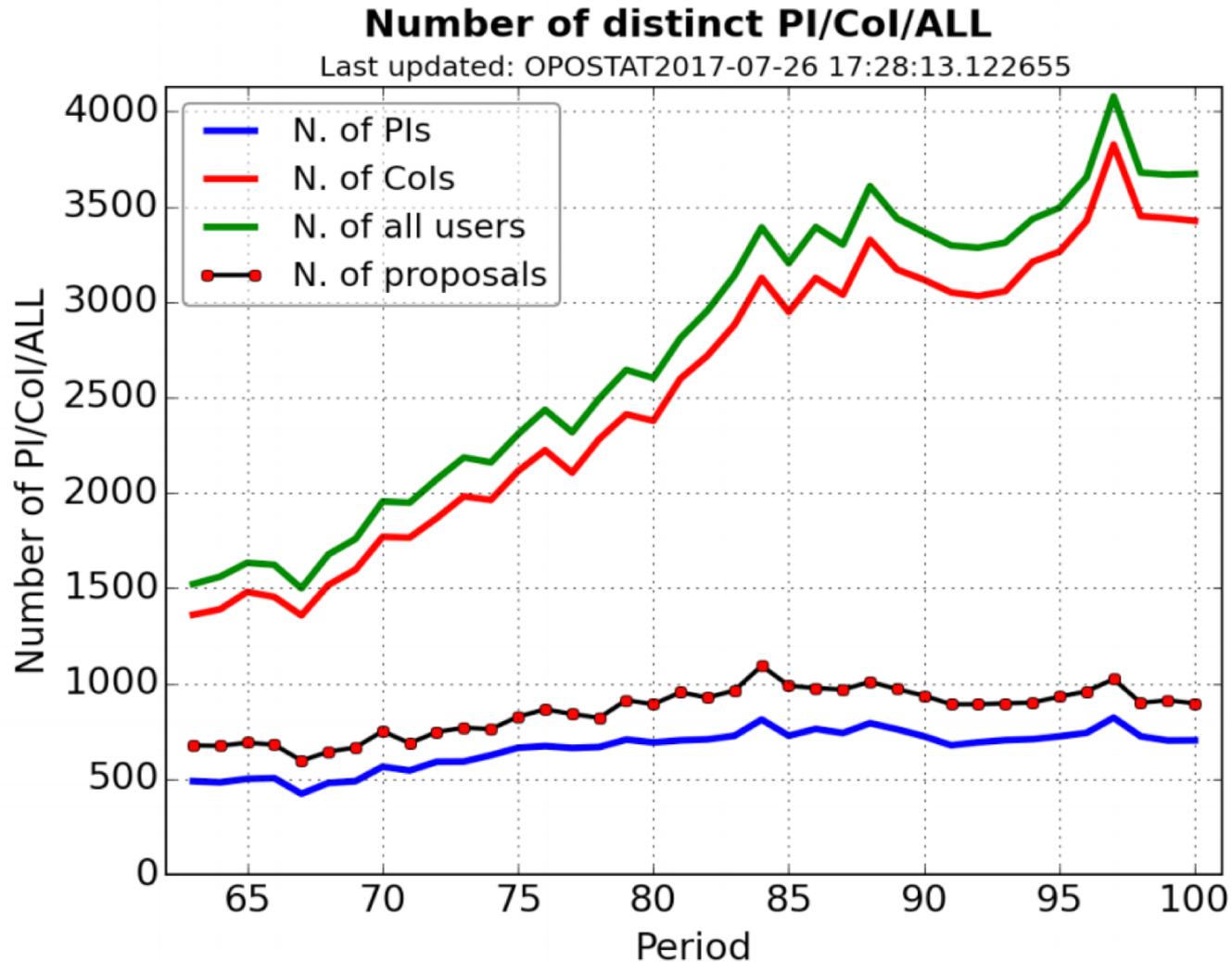
Setting the stage

- ESO receives ~900 proposals/period
- ~700 distinct PIs
- ~3500 distinct co-Is from ~50 countries (IAU members ~10,000)
- 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



The ESO Community



Structure of the ESO OPC

■ 13 panels in 4 science categories

- A: Cosmology and Intergalactic Medium (2 panels)
- B: Galaxies (3 panels)
- C: ISM, star formation and planetary systems (4 panels)
- D: Stellar evolution (4 panels)

■ 6 members per panel

- 1 panel chair
- 1 panel co-chair

■ OPC:

- 13 panel chairs
- 3 panel co-chairs (2 in A, 1 in B)
- 1 OPC chair (not a panel member)

■ Total:

- 17 OPC members
- 72 panel members

OPC Composition

- OPC and panel members are selected on the basis of their scientific competence
 - Some allowance for gender balance and for distribution across member states (but not on a rigid basis)
 - Non-member state scientists of sufficient scientific stature can be OPC or panel members
 - ESO staff members cannot be OPC or panel members

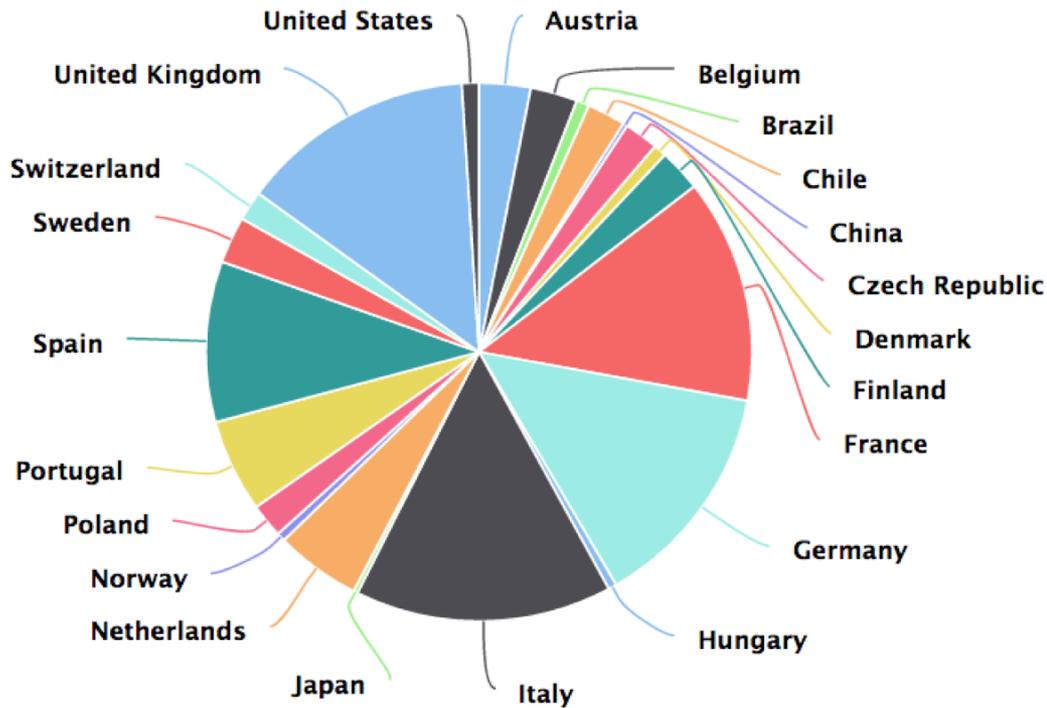
- Candidates are proposed to the OPC Nominating Committee
 - Advisory to the DG
 - 5 members “of notable accomplishment in astronomy”
 - ESO Director for Science (Rob Ivison)
 - 4 astronomers from the community (including former OPC Chair)
 - [The nominations come mainly from the User Committee \(+\)](#)

- Term of service:
 - OPC members: 2 years (4 periods)
 - Panel members: 1 year (2 periods)
 - A fraction of the panel members are invited to serve an extended, 3rd term, to ensure sufficient continuity
 - High turnover ensures that, with time, a significant fraction of the community gains experience of the process from inside
 - Every semester about 30 members are replaced

Country and Gender distribution

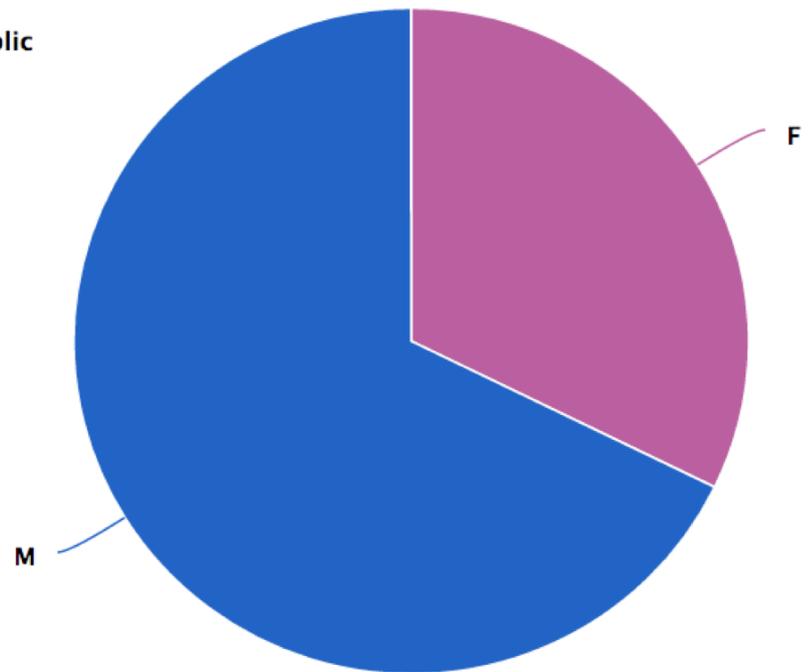
Committee Member Affiliations

For P97 to P101



Committee Member Genders

For P97 to P101



OPC Terms of Reference

- It is the function of the OPC to review, evaluate on scientific merit, and rank all proposals submitted in response to a call for the use of ESO observing facilities, and thereby advise the Director General on the distribution of observing time taking account of ESO's scientific policy.

ESO and the OPC

- The OPC is a body consisting of members of the astronomical community, who provide a service to this community
- ESO facilitates the OPC process, but takes no active part in the scientific evaluation of the proposals
- Time allocation is implemented by ESO based on the outcome of the OPC proposal review process, taking into account technical, operational and scheduling constraints

The OPC process/1

■ Before the OPC meeting

- All panel members read all proposals assigned to their panel (barring conflict of interest) and grade each run of these proposals
- The grades of all referees are normalised so that the distribution of the grades of each of them has the same mean and the same standard deviation
- A single ranked list per telescope is built from these normalised grades (excluding Large Programmes, GTO and Chilean proposals)
- The cumulative requested time per telescope is computed down each list
- A “triage” line is drawn when this cumulative time exceeds 70% of the total requested time on the considered telescope

The OPC process/2

■ Triage:

- As a rule, proposals below the triage line are not further considered. However:
 - Proposals for which the standard deviation of the individual referee grades exceeds a certain threshold are brought back above the line
 - Triaged proposals can be “resurrected” upon request of any panel member
- For each telescope, the cumulative amount of requested time above the triage line must exceed the amount of available science time by a factor ≥ 2 (avoid under-subscription)
- Lists of triaged proposals per panel are compiled from the lists per telescope

OPC Feedback

- The primary referee is responsible for writing feedback comments to be communicated to the PI
 - He/she must make sure that he/she gathers all the necessary information during the panel meetings
- Feedback comments are based on the discussion of the proposal at the meeting
 - For triaged proposals, they should be based on pre-OPC meeting report cards
- Primary referees must submit their comment cards via WOT within one week of the end of the OPC meeting
 - Each primary referee emails his/her draft comments to his/her fellow panel members asap after the meeting
 - Panel members send suggestions to primary referee for corrections and improvements
 - After implementing the corresponding modifications, the primary referee submits his/her comment cards to ESO

OPC Feedback/2

- Identify the strengths and the weaknesses of the proposal
- Make suggestions regarding possible improvements
- In case of rejection, specify **why** the proposal was rejected

OPO will add:

- a note stating that the referee did not know if the proposal would be allocated time when he wrote his feedback comment (when applicable)
- scheduling information including:
 - the quartile in which the run is located in the ranking of the considered telescope
 - the oversubscription factor of the requested telescope
 - the reason why the run was not scheduled (if it was not scheduled...)
 - any technical feasibility comment from the La Silla Paranal Observatory

Oversubscription

■ Pressure factor typically high

- typical oversubscription for ESO telescopes is >3
 - often reaching 5 and in certain periods/RA ranges 8 or higher

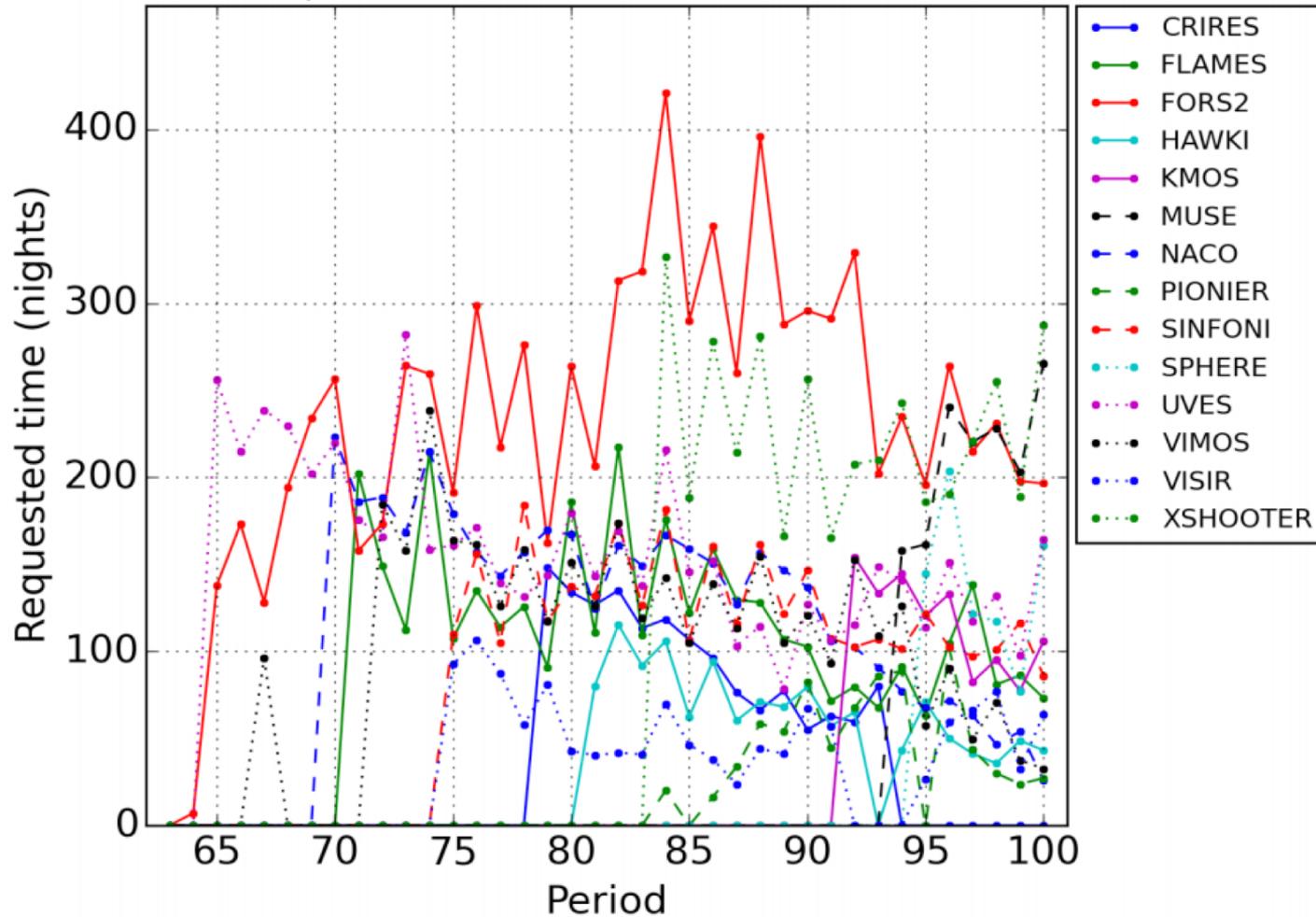
- Large Programmes have an acceptance rate of about 20% or less

- Pressure on ToO proposals is high
 - GRBs, supernovae, novae, stellar occultations by TNOs, microlensing, other transient phenomena

Instrument Demand

Time request per instrument

Last updated: OPOSTAT2017-07-26 17:28:38.693506



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 20th 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
- Need to justify the request for telescope resources (time/instrument/conditions)
- Need to demonstrate what you propose is feasible

Writing a proposal/2

- Be aware that you are not the only applicant and that the referees will have *maaaany* proposals to read (60 to 80 each!)
- 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 ϵ 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

Keep in mind that:

- **OPC evaluation of proposals:** Proposers should keep in mind the need for each OPC panel to cover a broad range of scientific areas. As a result, a particular proposal may not fall within the main area of specialisation of any of the panel members. Proposers should make sure that the context of their project and its relevance for general astrophysics, as well as any recent related results, are emphasised in a way that can be understood by their peers regardless of their expertise.

CfP 102, p. 9

The Abstracts

- 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

- The abstract HAS to contain the punch line!

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

■ Get them from the instrument web pages

Overheads

Direct links to instruments on [UT1](#), [UT2](#), [UT3](#), [UT4](#), [VLT1](#), [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

Overheads and Exposure Times

- They can/should also 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/>



Example UVES ETC



UVES Exposure Time Calculator

Optical Echelle Spectroscopy Mode [Version P101](#)

[Description](#)

[FAQ](#)

Target Input Flux Distribution

<input checked="" type="radio"/> Template Spectrum	<input type="text" value="A0V (Pickles)"/>	Redshift z = <input type="text" value="0.00"/>	Target Magnitude and Mag.System: <input type="text" value="V"/> = <input type="text" value="17.000"/> <input checked="" type="radio"/> Vega <input type="radio"/> AB <i>Magnitudes are given per arcsec² for extended sources</i>
<input type="radio"/> MARCS Stellar Model	<input type="text" value="Teff=4000 log(g)=-0.5 [Fe/H]= 0 M= 1"/>		
<input type="radio"/> Upload Spectrum	<input type="text" value="Select..."/>		
<input type="radio"/> Blackbody	Temperature: <input type="text"/> K		
<input type="radio"/> Power Law	Index: <input type="text"/> $F(\lambda) \propto \lambda^{index}$		
<input type="radio"/> Emission Line	Lambda: <input type="text"/> nm Flux: <input type="text"/> 10^{-16} ergs/s/cm ² (<i>per arcsec² for extended sources</i>) FWHM: <input type="text"/> nm		

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



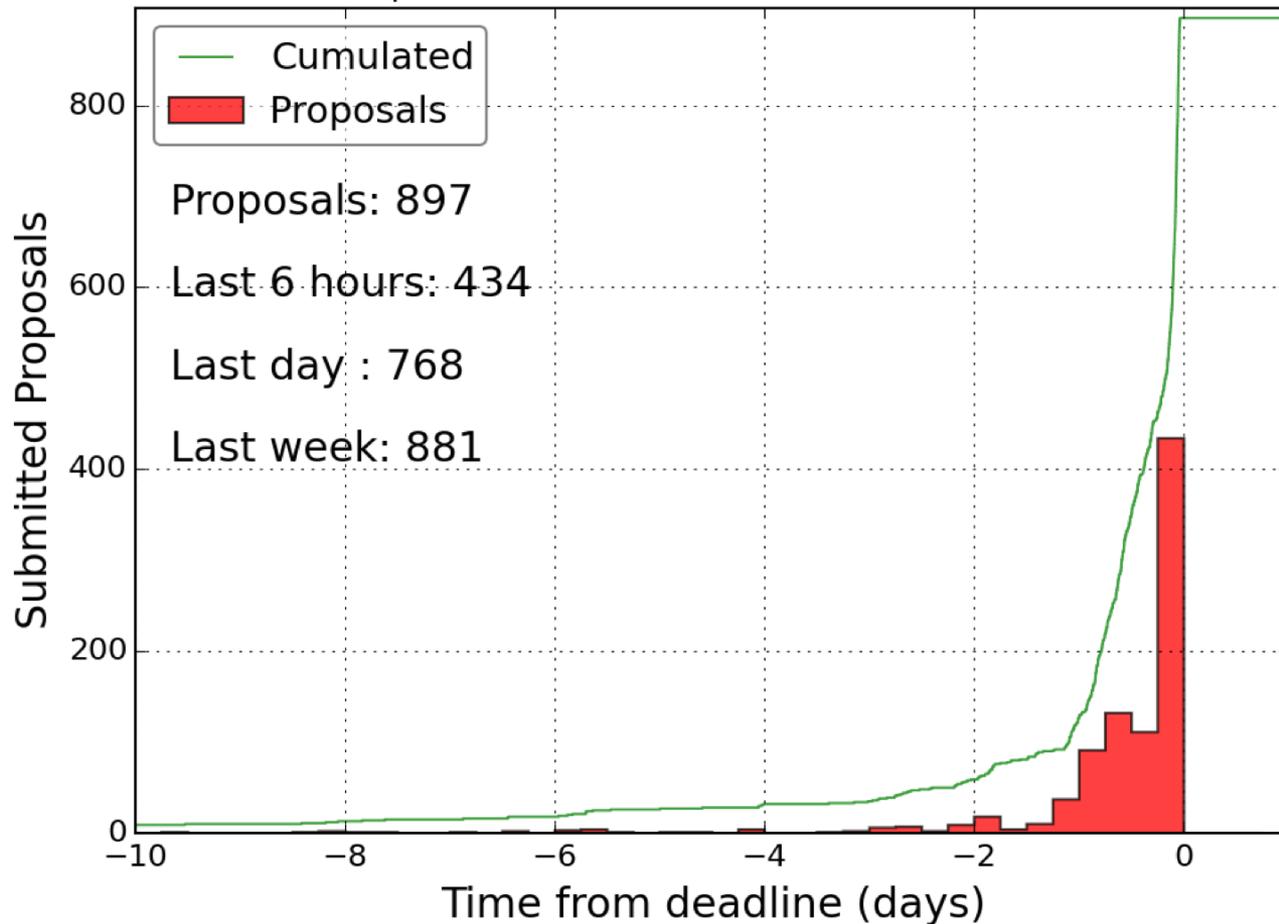
Don't

- ... 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
- **Verify it ahead of time.** It does not need to be final!

Don't wait for the last minute

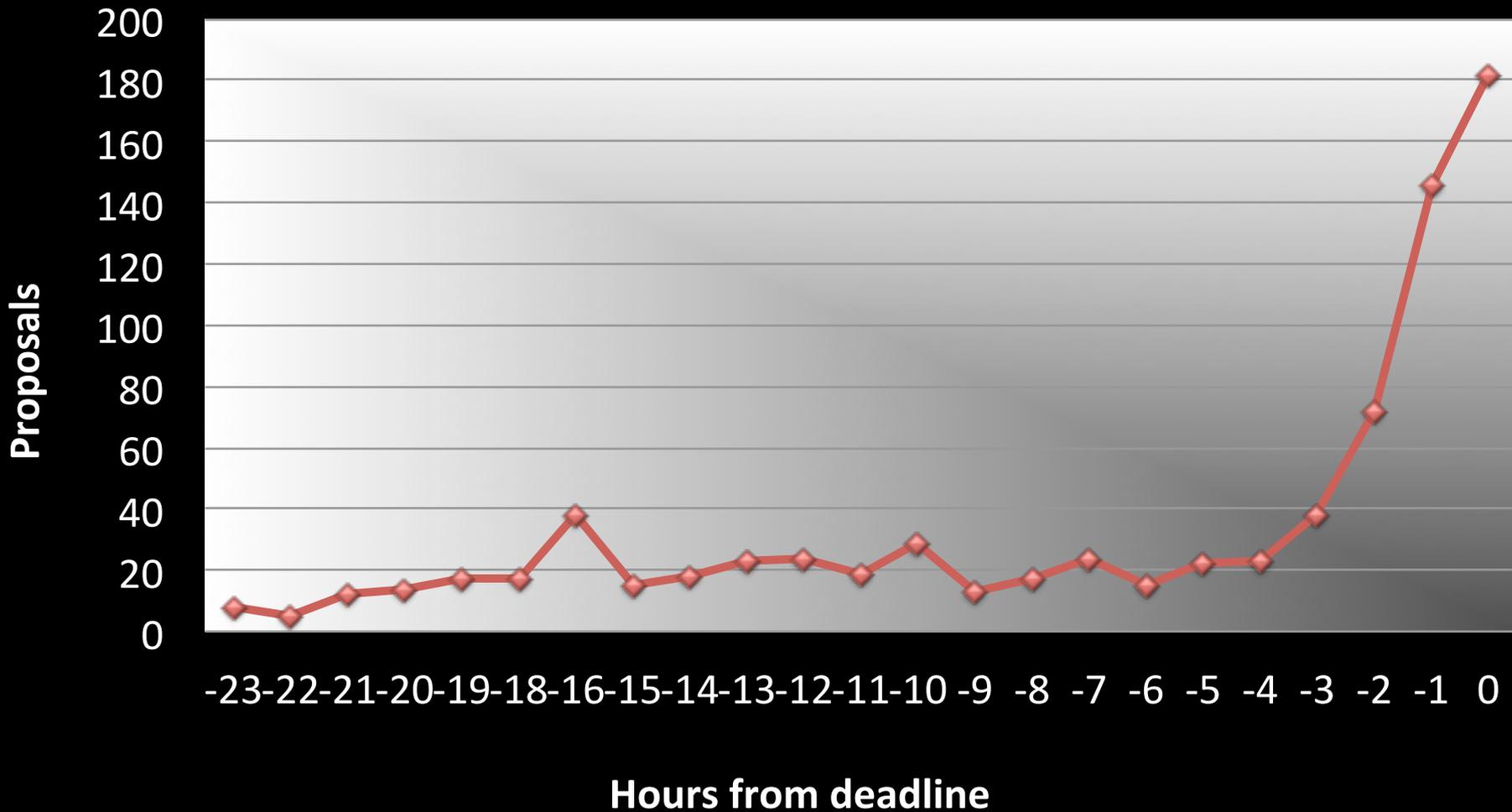
Proposal arrival times - Period 100

Last updated: OPOSTAT 2017-09-04 18:13:03.343198



The last 24 hours

Arrival Times P90 (last 24 hours)



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



DO

Science Users Information

Observing Facilities

Future Facilities and Development

Observing with ESO Telescopes

Policies and Procedures

Telescope Time Allocation

Telescope Schedule

Large Programmes

ToO Programmes

DDT Programmes

GTO Programmes

ESO/GTC Programmes

Public Surveys Programmes

ESO/GTC Programmes

Phase 1 Proposals

Phase 2 Preparation

Phase 3

Public Surveys

Observing Tools and Services

Visiting Astronomers

Science Software

Data Handling and Products

Guaranteed Time Observations for Period 101

Please find below the protected target lists of the GTO teams for P101:

ARTEMIS

- [List of protected observations for the ARTEMIS consortium](#)

GRAVITY

- [List of protected observations for the GRAVITY consortium](#)
- [List of protected observations for VISA-MPG](#)

KMOS

- [List of protected observations by the KMOS consortium](#)

MUSE

- [List of protected observations for the MUSE consortium](#)

NACO

- [List of protected observations for the PRIMA-DDL consortium](#)

DO

- ... 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!

- ... 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!
- ... 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 completed...

- ... 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!

The Web-letters

Period 100, Programme 0100.D-0163

Dear Dr. Patat,

The following table provides information on each of the runs composing your programme 0100.D-0163,

Spectroscopy of Very Early Supernovae.

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
	0100.D-0163(A)	UT1	FORS2	11.0	A	Run A: Ranking: This run has been ranked in the 1st quartile of all runs at this telescope. Pressure: in ... Click here to read more

Service Mode Notes:

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

P102 Timeline

- Call for Proposals: Feb 28, 2018
- Proposal submission: Mar 28, 2018
- Proposal review: ~ Apr 9-May 11
- OPC meeting: May 22-24
- Telescope Scheduling: May 24-Jul 1
- Schedule Review Meeting: Jul 2
- Planned date for web-letters release:

July 4, 2018

Resubmissions/1

- >35% of the proposals are resubmissions

- 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

- *If I had a recipe for this I would probably not be here.*
- **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

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



Proposals and 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 (get in touch with your UC representative!)
- Participate in other ESO activities
 - get to know the organisation better
 - active interactions with ESO people
- Have a lively scientific exchange with ESO's astronomical community
 - conferences, workshops
 - regularly publish your results

Earth does not move[★]

All stars show a yearly oscillation

F. Patat¹, S. Cristiani¹, E. Hoppe¹, and G. Hussain¹

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 ;-)

Time to apply for time...



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ESO Call for Proposals – P102

Proposal Deadline: 28 March 2018, 12:00 noon CEST