Based on P.Garcia, G.Duvert, O. Chesneau, and F. DelPlancke talks of previous VLTI schools

Proposal Preparation

Understand the process of the evaluation,
go through the form, tips and tricks,
a game for you.

Claudia Paladini

Belgian Science Policy Office
belspo

ULB UNIVERSITÉ LIBRE DE BRUXELLES

Writing a (ESO) proposal

Let's say you had a great idea (i.e. science case!) which needs high angular resolution in the infrared.

What is available (@ ESO)?

- AMBER: 3-telescopes beam combiner; JHK bands; (*R=35, R=1500 and R=12000)*
- MIDI: 2-telescope beam combiner; N band (*R = 30, 230*)
- PIONIER: 4-telescopes beam combiner (*H-band 3 spectral channels)*

When to apply?

Watch out the ESO webpage or subscribe ESO newsletter:

~ 1 September (April - Sept obs);

~ 1 March (Oct – March obs)

} 4 weeks call

Rule number 1:

RTFM

Read This Fantastic Manual

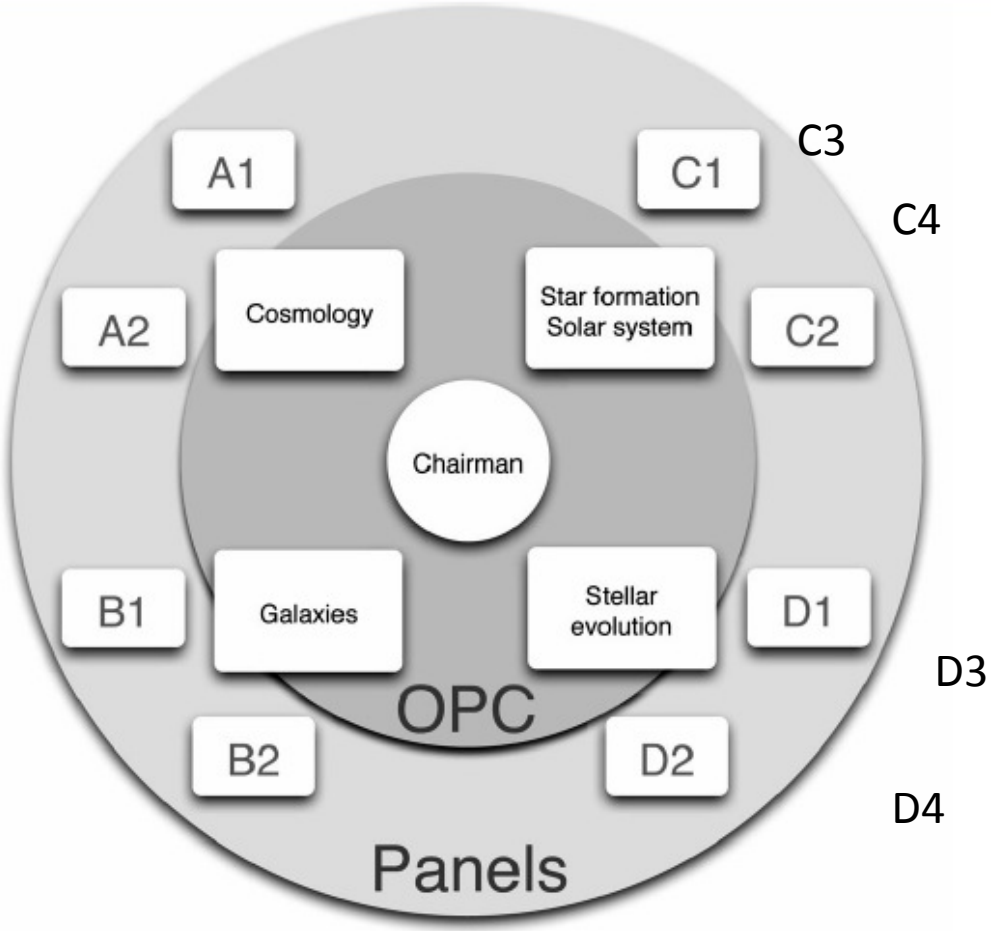
ESO Call for Proposals – P93

Proposal Deadline: 01 October 2013, 12:00 noon CEST

The OPC
Observing Proposal
Committee

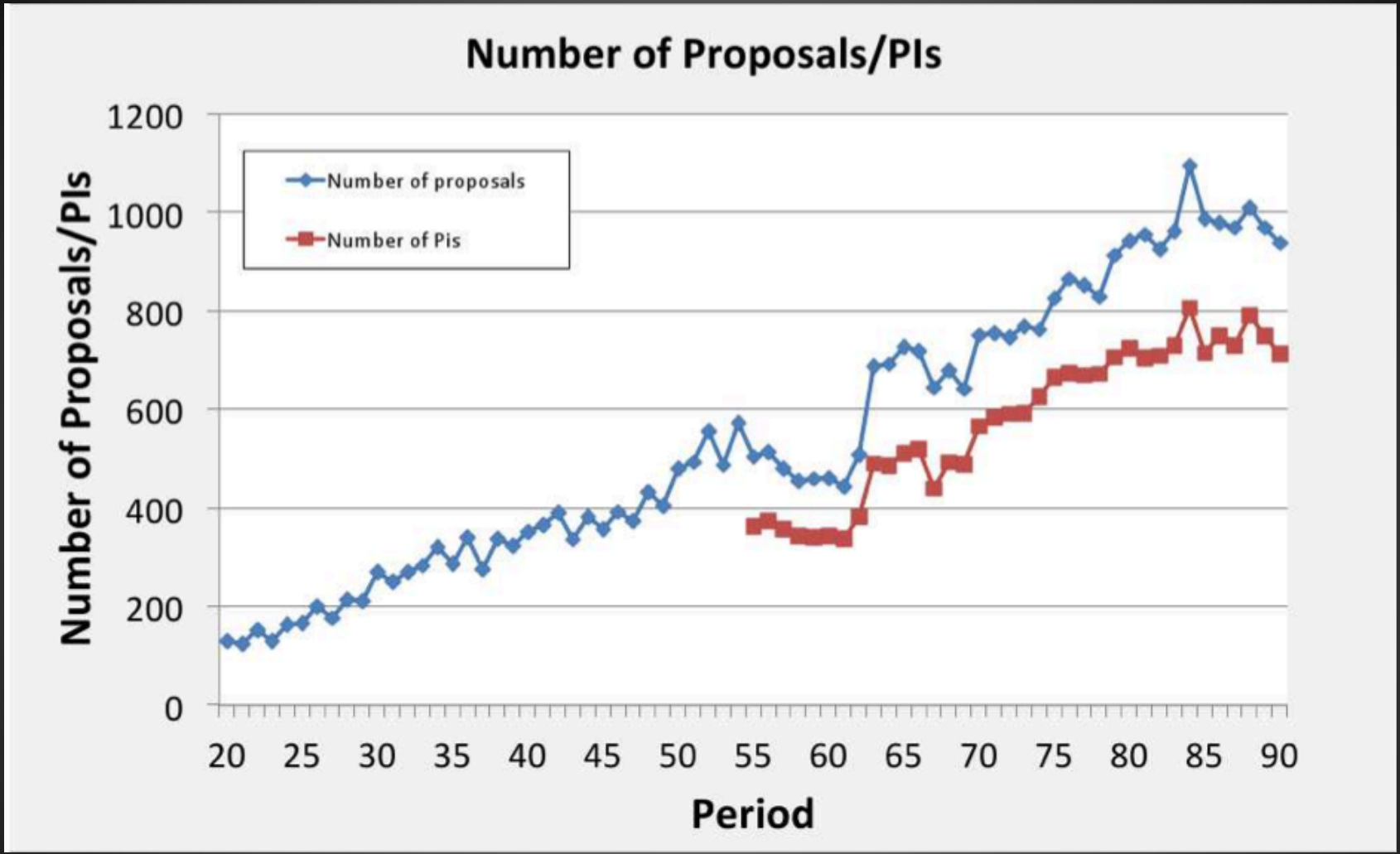
Understand how the system works

OPC structure



- Each sub panel has ~1 OPC member + 6 experts (panel members)
- 1 national member per country is selected by Director General (list of 2-3 names suggested by national committee)
- Experts are selected by ESO+OPC Chair+OPC members consultation

Patat 2012



Stabilizing ~ 950 proposals ~700 Principal Investigators

~3170 nights asked in the last 4 years (1070 scheduled)

~800 Proposal submitted in the last 24H!

Different types of proposal

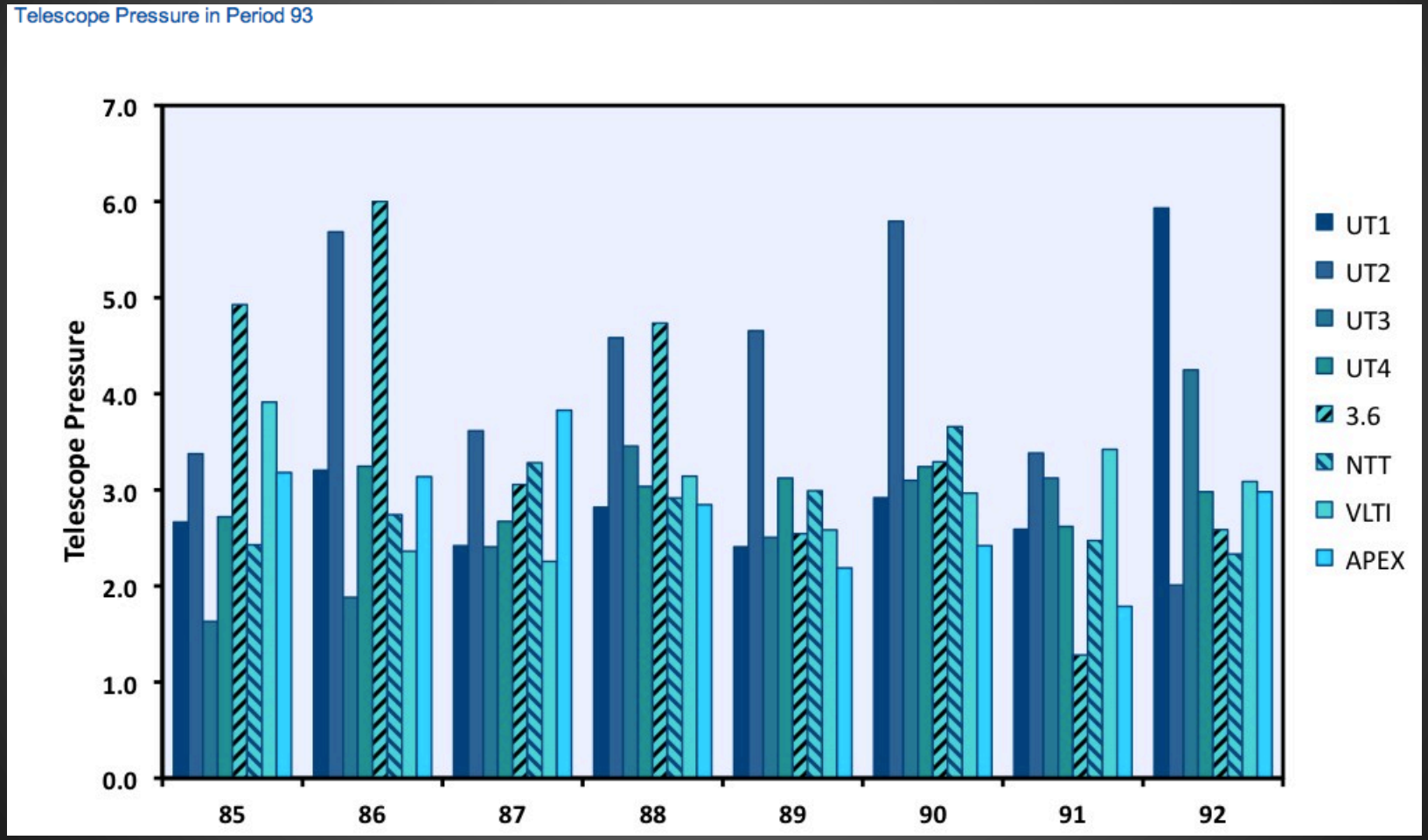
- Director Discretionary Time (~ 5%) - DDT
- Target of Opportunity - ToO
- Large programme – LP
- Guarantee Time Obs. (you build telescope, payment in Obs. Time) - GTO
- Normal programmes (typically this is your proposal)
  - Be aware also of possibility for monitoring programs!

When do you ask for DDT?

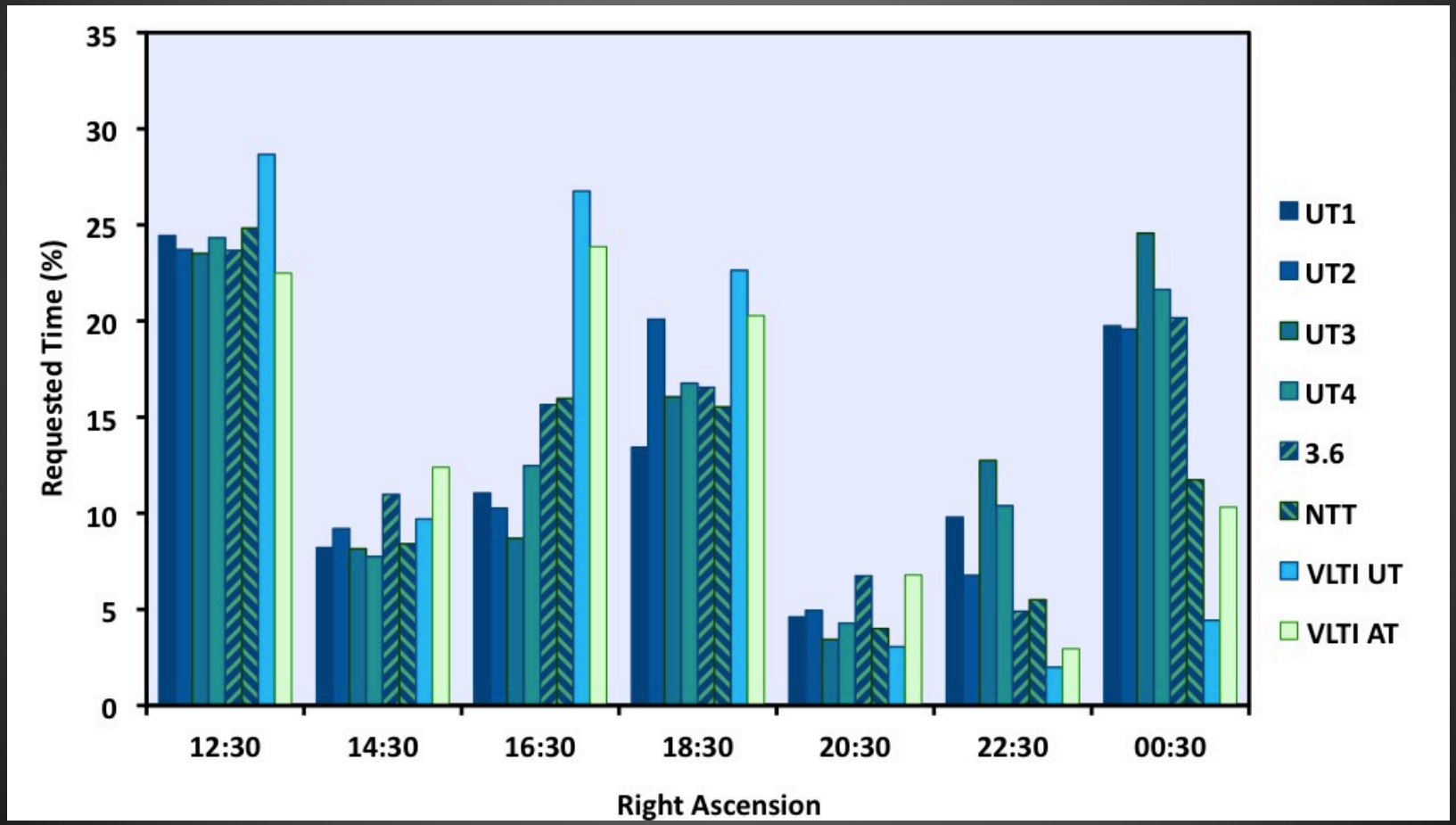
- Unpredictable ToO
- Proposal requesting observations on a hot scientific topic
- When your previous observations miss one data point for a breakthrough result

Can be applied every time
http://www.eso.org/sci/observing/policies/ddt_policy.html

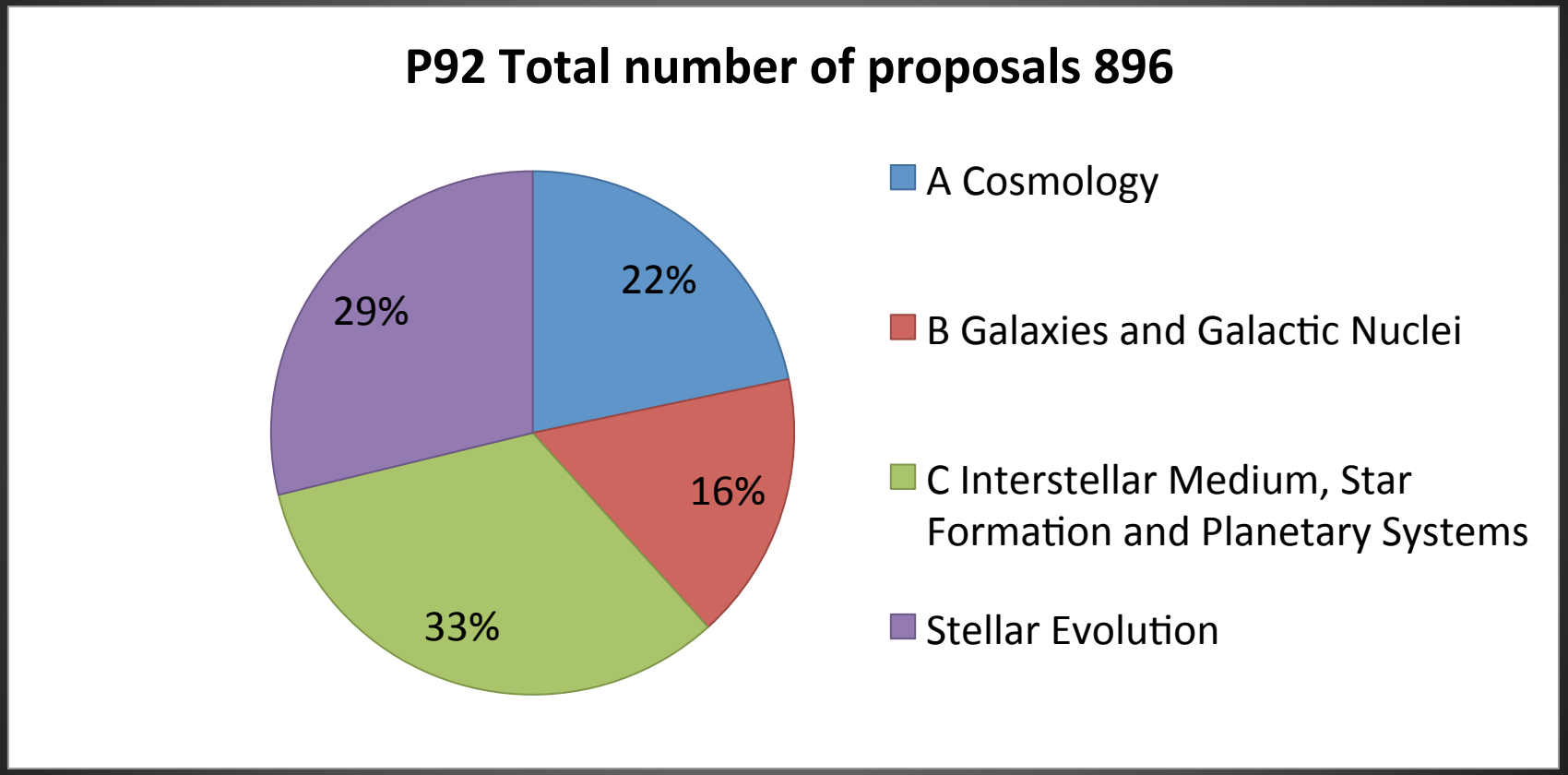
Be aware of telescope pressure



Be aware of the area of the sky you want to observe



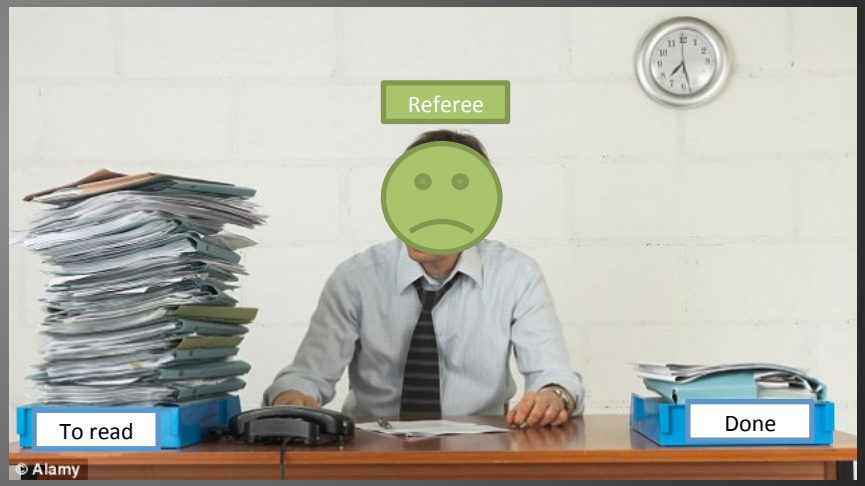
Number of proposal per science category



Fraction of proposals for panel C & D increasing over the last few years

Before the OPC meeting

- Panel members receive detailed instructions on the process and their role
- Panel members receive allocated proposals **(typically <~ 100 proposals).**
- **All panel members grade all proposals and submit grades and comments to ESO**
- ESO renormalizes all panelists distribution to a standard distribution.
- All proposals are graded with the normalized grades of each panelist.



~ 100 proposal
on a subject different from your
to read during your free time
(work for free)

Conflict of interest

- Should be declared by the referee one week after receiving the proposals
- If detected only at the meeting – members doesn't vote (leaves the room)
- People normally follow this rule

Conflict of interest

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

About the panels

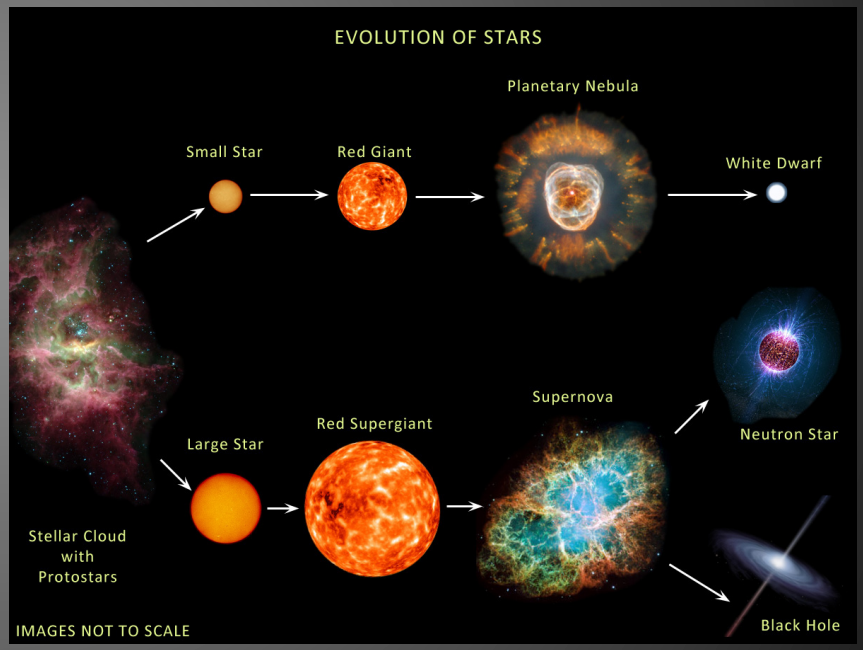
Members of the panel have a wide expertise:

D - STELLAR EVOLUTION

- D1 Main-sequence stars
- D2 Post-main-sequence stars, giants, supergiants, AGB stars, post-AGB stars
- D3 Pulsating stars and stellar activity
- D4 Mass loss and winds
- D5 Supernovae, pulsars
- D6 Planetary nebulae, nova remnants and supernova remnants

….. And so on till D12

http://www.eso.org/sci/observing/phase1/p93/opc-categories.html



Typical OPC meeting: discussion and finale marks

- Proposal discussion
  - 1 referee presents + and – points of the proposal
  - Other members ask questions, express opinion
  - 6 members vote (referees marks may change during discussion)
- Marks: A -> C
  - 1.0 – outstanding
  - 1.5 – excellent
  - 2.0 – very good
  - 2.5 – good, should be done if time permits
  - 2.9 – limit of acceptable, lowest priority for implementation
  - 3.0 – not recommended for implementation
  - 4.0 – bad proposal, not recommended for implementation
  - 5.0 – very bad proposal, strongly discouraged for implementation

About the evaluation

- Scientific merit
- Strategy + Time +Team
  - evidence of sufficient time, resources & strategy
- Scientific output from previous observations
  - Reports/papers published or in preparation
- Good prospects of success
  - Not taking into account technical feasibility (done afterwards)
- Requests of time for completion of programs already accepted

➢ Affiliation and nationality of the applicants should **not** influence the evaluation process

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 at most 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.

AFTER THE OPC MEETING

☞ The fact that a proposal was triaged out, hence that it was not discussed at the panel meeting, should *not* be mentioned in the feedback text.

☞ Feedback comments should be written as soon as possible after the end of the panel/OPC meeting, so as to ensure that they accurately and closely reflect the evaluation of the referees. Written at the END of the OPC meeting

As a general practice, in each panel, draft feedback comments are circulated among the panel members for review and comments, and they are updated on the basis of the latter by the primary referee prior to their submission to the ESO database.

WHAT TO DO?

Tips & Tricks (I)

Rule number 1:

RTFM

Read This Fantastic Manual

ESO Call for Proposals – P93

Proposal Deadline: 01 October 2013, 12:00 noon CEST

Rule number 2:

RTFM
and

follow the links to the other fantastic manual with crucial information on instruments

ESO Call for Proposals – P93

Proposal Deadline: 01 October 2013, 12:00 noon CEST

Rule number 3:

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

This is BAD.

Rule number 4:

Understand how the system works

- Call for proposals
- OPC minutes*
- VLT/VLTI Science Operations Policy
- Users group minutes*
- Discuss with your national representative, experienced users
- Watch this talk

* = Minutes available on ESO webpage
http://www.eso.org/public/about-eso/committees.html

Rule number 5:

Ask a colleague from another field to read your proposal

Strictly connected with Rule 3

Going through the ESOFORM

Based on the esoform-93A

Be aware of changes from one call to another!

European Organisation for Astronomical Research in the Southern Hemisphere

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: **93A**

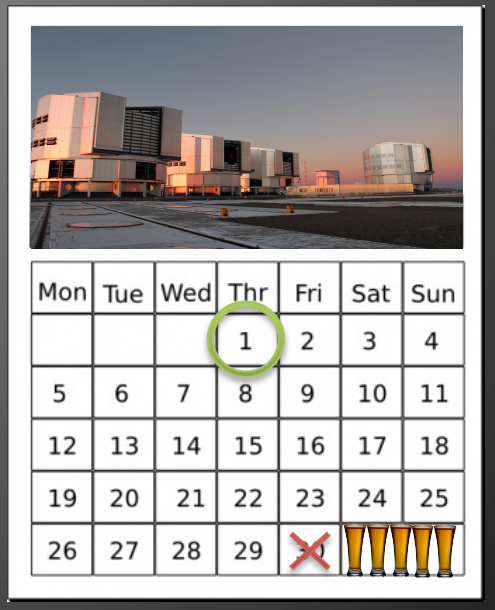
Important Notice:

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 ESO webpage)



1. Title — Category: **X–0**

This Is The Proposal Title This Is The Proposal Title

2. Abstract / Total Time Requested

Total Amount of Time:

This is a concise abstract of the proposal which may have up to 9 lines.

- Title and abstract obey to the normal considerations
  Why, how (instrument/objects) and what (you get)
  - *Don't forget that audience is probably less specialized than for a given paper/talk*
  - *Be catchy!*
- Categories
  - *Will define who is going to read/judge your paper*
    - A: Cosmology
    - B: Galaxies and galactic nuclei
    - C: ISM, star formation and planetary systems
    - D: Stellar evolution

3. Run	Period	Instrument	Time	Month	Moon	Seeing	Sky	Mode	Type
A	93	FORS2	4h	may	n	0.8	PHO	s	
A/alt	93	FORS2	3n=2x1+2H2	may	n	0.8	PHO	v	
B	93	VIMOS	2n=2x1	jun	n	0.6	CLR	v	
C	93	EFOSC2	3n	aug	n	0.8	THN	v	
D	93	NACO	0.4n	may	n	0.8	THN	v	
E	93	AMBER	1h	apr	n	1.4	THN	s	
F	93	MIDI	1h	apr	n	n	THN	s	

- OPC can cut runs but will not change time of one run
- Identify your **minimum** requirements
- If you ask 2” you always get usually **better** than that (do not be too strict!)

4. Number of nights/hours	Telescope(s)	Amount of time
a) already awarded to this project:	NTT	4n in 91.B-1234
b) still required to complete this project:	UT2	20h

5. Special remarks:

This macro is optional and can be commented out.

4. Project means that you are going to use some previous data together with this new data in your next paper

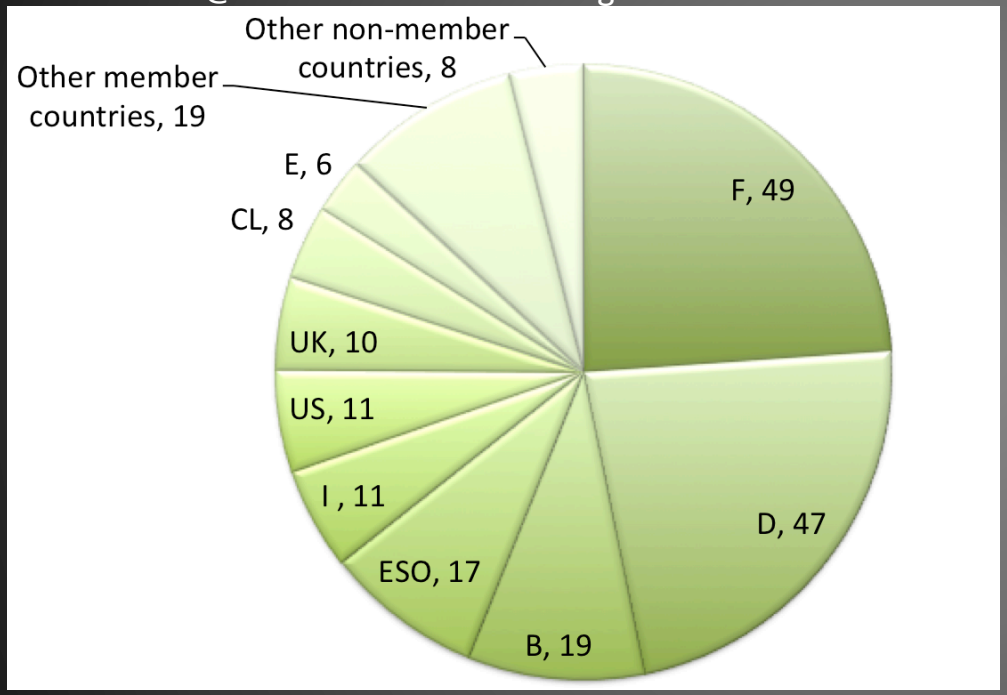
- Don't try to trick the OPC because they will remember your last application.
- Can be used to
  - Increase objects data base
  - Obtain a few more visibilities to remove model degeneracy

5. Special remarks

  - Can be used to tell the OPC that this is a re-submission of a previous well rated proposal not executed
  - Can be used to tell about coordinated works

6.	Principal Investigator: JSMITH999
6a.	Co-investigators:

Wittkowski @ User Commitee meeting 2013



Nationality of the PI is **not** an issue except for Chilean (10% time).

Everybody (from ESO member & non member countries) can apply.

BUILD YOUR TEAM:
choose your CoIs thinking about the science that you want to do!
(Like ingredients of a recipe, what do you need to cook a tasty paper?)

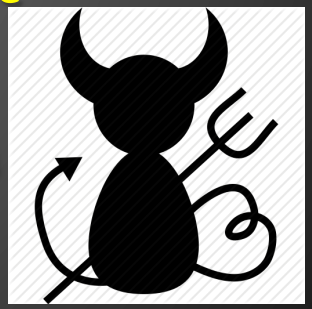
7. Description of the proposed programme

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

- Should be written in a similar form to a paper introduction (but simpler – panel composition!)
- The importance of the work in the field at large (sometimes very large, like for LP) should be made clear
  - Panel composition is wide, the 6 members have to be convinced
  - Write this aspect for a specialist outside your narrow area

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.

- The results and discussion of the paper should be anticipate
- If you get a negative result – discuss the implications
- Feasibility must be clear – don't try to trick the OPC
  - Always identify objectively the risks and outcomes



Description + Immediative Objective
2 pages including figures!

How can I do that?

For example…

You do not need to tell the OPC everything you want to do with the data.

Keep simple

Choose the most interesting-catchy-cool result you expect

FOCUS

8. Justification of requested observing time and observing conditions

Lunar Phase Justification: Provide here a careful justification of the requested lunar phase.

Time Justification: (including seeing overhead) Provide a careful justification of the requested number of nights or hours for each observing run here. ESO Exposure Time Calculators exist for all Paranal and La Silla instruments and are available at the following web address:
http://www.eso.org/observing/etc .
Links to exposure time calculators for APEX instrumentation can be found in Section 7 of the Call for Proposals.

Moon not really an issue, unless it is passing really close to your star

Time

- identify the minimum amount of time to achieve your goals
- Explain carefully including overheads – RTFM
- OPC generally will prefer to downgrade your proposal to reduce it's allocated time
- Don't be afraid of asking 1h for starting if you can already do some science!

8a. Telescope Justification:

Justification for the use of the selected telescope (e.g., VLT, APEX, etc...) with respect to other available alternatives.

- Not really an issue as long as instrument is unique – e.g. VLTI
- But beware of asking UT time when it can be done with ATs
- Can be an issue for those with access to CHARA…

8b. Observing Mode Justification (visitor or service):

Justification for the observing mode requested (visitor or service).

Visitor Mode (VM) can be relevant if

- Observing difficult targets (magnitude/zenithal distance)
- Some instruments/modes only work in visitor mode
- Anyway should be justified

Be aware of the new "delegate VM" (no trip to Paranal for you)

Service is more efficient

8c. Calibration Request:

Special Calibration - Adopt a special calibration

Usually not needed, but check with your team experts.

9. Report on the use of ESO facilities during the last 2 years

This macro is optional and can be commented out.

10. Applicant's publications related to the subject of this application during the last 2 years

Name1 A., Name2 B., 2001, ApJ, 518, 567: Title of article1

Name3 A., Name4 B., 2002, A&A, 388, 17: Title of article2

Name5 A. et al., 2002, AJ, 118, 1567: Title of article3

- Are you really doing science or increasing the archive volume?
- Pass here the information that you are an active and efficient user of ESO facilities
- Are you an experienced ESO user?
  - If yes the probability of getting time is higher but be aware PhD and young PostDoc reduce data faster

Do not be afraid of applying as Principal Investigator (if this is your idea)!

9a. ESO Archive - Are the data requested by this proposal in the ESO Archive (http://archive.eso.org)? If so, explain the need for new data.

Are the data requested in this proposal in the ESO Archive (http://archive.eso.org)? If yes, explain the need for new data.

- Referees will verify this point carefully
- If this true and you haven't filled this point you are dead.

9b. GTO/Public Survey Duplications:

Specify whether there is any duplication of targets/regions covered by ongoing GTO and/or Public Survey programmes. If so, please explain the need for the new data here. Details on the protected target/fields in these ongoing programmes can be found at:
GTO programmes: http://www.eso.org/sci/observing/teles-alloc/gto.html
Public Survey programmes: http://www.eso.org/sci/observing/PublicSurveys/sciencePublicSurveys.html
This macro is optional and can be commented out.

Check the GTO list online before starting to write. You cannot ask for the same target +configuration+instrument.

11. List of targets proposed in this programme

Run	Target/Field	α(J2000)	δ(J2000)	ToT	Mag.	Diam.	Additional info	Reference star
ABC	Cen A	13 25 27.61	-43 01 08.8	8.0	7.9	20 min	NGC 5128	
A	NGC 5139	13 26.8	-47 29	5.0	6.12	1 deg	Omega Cen	
BC	NGC 6058	15 12 51.0	-38 07 33	15.0	11.6		plan. neb.	
B	M 5	15 18 33	+02 04 58	8.0	7		glob. cluster	
C	M 6	17 40.1	-32 13	10.0	2.0	4.3	Butterfly cl.	
C	M 8	18 03 37	-24 23.2	1.0	3.8	30 min	Lagoon neb.	
C	NGC 6822	19 44 57.8	-14 48 11	20.0	18		Barnard's gal.	
D	NGC 7793	23 57 49.9	-32 35 20	20.0	18		Sd gal.	S322120026
E	Alpha Ori	06 45 08.9	-16 42 58	1	-1.4	6 mas	Sirius	
F	Alpha Ori	06 45 08.9	-16 42 58	1	-1.4	6 mas	Sirius	

Target Notes: A note about the targets and/or strategy of selecting the targets during the run. For APEX runs please remember to specify the PWV limits for each target under 'Additional info' in the table above.

Diameter: from model estimations or previous measurements.
The rest is straightforward, RTFM.

12. Scheduling requirements

This proposal involves time-critical observations, or observations to be performed at specific time intervals.

1. Run Splitting

Run	splitting
B	1,10s,1
C	2,10s,2,20w,2,15s,4H2

2. Link for coordinated observation

Run 1		Run 2	delay
B	after	A	10
C	after	B	
E	simultaneous	F	

3. Unsuitable period(s) of time

Run	from	to	reason
A	15-jul-14	18-jul-14	Insert explanation of unsuitable time here.
B	15-jul-14	18-jul-14	Insert explanation of unsuitable time here.
C	20-jul-14	23-jul-14	Insert explanation of unsuitable time here.

Do not over constrain! you might not get scheduled

- Scheduling is done by software…

13. Instrument configuration

Period	Instrument	Run ID	Parameter	Value or list
93	FORS2	A	IMG	ESO filters: provide list HERE
93	VIMOS	B	IFU 0.33"/fibre	LR-Blue
93	EFOSC2	C	Imaging-filters	EFOSC2 filters: provide list here
93	NACO	D	IMG 54 mas/px VIS-WFS	provide list of filters HERE
93	AMBER	E	LR-HK	2.2
93	MIDI	F	PRISM	HIGH-SENS

RTFM!

14. List of interferometry targets proposed in this programme

Run	Name	Vmag	mag(λ)	λ_obs	size(λ)	Baseline	Vis.	mag_c	Tot
E	Alpha Ori	-1.4	-1.4	10.6	6	UT1-UT2-UT3	0.45/0.60/0.10	0.3/-0.2/4.0	2
F	Alpha Ori	-1.4	-1.4	10.6	6	D0-H0-G1-I1	0.80	-0.9	1

VLTI Target Notes: Note about the VLTI targets, e.g., Run E can also be carried out using UT1-UT3-UT4.

Size – expected size (Read the call for proposal for more details)

Mag_c = mag + $2.5\log_{10}$(VISIBILITY) – check ASPRO (presentations coming days) & manual for the magnitude limits

Common mistakes

Tips & Tricks (II)

- Bad use of telescope time
  - Huge program with low return (probability)
- Don't take into account that panels are very wide in composition
  - Remember panel composition
  - The proposal should very well introduce the domain
- Proposal too specific and with irrelevant details
- 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
  - use latex correctly including bolds, paragraphs
  - BUT! do not reduce the font!
- Figures can be very useful, even if they are not mandatory
- Submitting too many proposals

Tips & Tricks (III)

The panel likes:

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

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!

What to do when you get rejected

- Do not overemphasize the message you got
  - Messages are deliberately short, neutral and general to avoid polemic and useless critique
- Understand why you got rejected
  - Read the proposal again
  - Ask your colleague to read the proposal and give you his feedback
  - Contact OPC member/chairman/ VISAS
  - Always be positive and objective during cominication
- Avoid at all cost entering into conspiracy theory kind of reasoning

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

- Re-submitted with a special remark (5.) on non-execution and grade
- Relax observing constrains (seeing, etc)
  - Scheduling is done by software…

Tips & Tricks (IV)

- If you are an observer you have to be able to write observing proposal to have your own data.
- If you are a theoretician you need data to test your models: you need to be able to write observing proposals.
- To have ideas for a science case read a lot of papers and go to seminars! Even if they are not related to your 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! (ASPRO, CALVis, SearchCal, ... see other lectures)

The calibrators

The raw fringe contrast observed in interferometry need to be calibrated to obtain the true visibility of your object.

How do we calibrate?

We measure with the same apparatus, almost simultaneously the contrast of an object with known visibility: your calibrator.
You want calibrators, you want A LOOOT of calibrators!

How do we choose a calibrator?

Three different tools available:

CalVin http://www.eso.org/observing/etc/

SearchCal `http://www.jmmc.fr/searchcal_page.htm`

GetCal http://nexsciweb.ipac.caltech.edu/gcWeb/gcWeb.jsp

A good calibrator

A good calibrator should have the following characteristics:

- un-resolved (point source), meaning V~1
- difference in magnitude between science and calibrator less than 1 magnitude (avoid bias)
- calibrator should be brighter than the target
- not too far from the science (match of the airmass, 20 min in RA and 2 degree in DEC)
- reject calibrators which are known variable or in multiple systems (binary...)

Useful Links

Kervella & Garcia (2007)
http://arxiv.org/pdf/0705.4065v1.pdf

ESO VLTI webpage:
http://www.eso.org/sci/facilities/paranal/telescopes/vlti/

Call for Proposals of the period you are applying
User's manual for Phase 1 proposals (esoform package)
On the writing of observing proposals, Christoffel Waelkens
http://www.eso.org/sci/observing/proposals/writing-op.html
OPC minutes (not allways available)
http://www.eso.org/public/about-eso/committees/opc/
Preparing an ESO proposal, by P. Kervella & P.J.V. Garcia
http://www.vlti.org/events/assets/2/documents/3a_2.6_Kervella.pdf
OPO documets:

http://venngeist.org/opsa2_patat.pdf
http://www.eso.org/sci/publications/messenger/archive/no.150-dec12/messenger-no150-17-20.pdf

Rules of the game

- teams of 4 students with common scientific interest
- prepare an observing proposal
- present it "live" in front of a simulated OPC panel on Friday 20th
  - **MAXIMUM** 5 slides & 7 minutes presentation
  - immediate feedback
  - no need to fill in the "ESO proposal form"

What do we look for ?

- Why ?
  - scientific justification, overview
- What ?
  - which object, which parameters ...
  - which results are expected
  - what if the result is negative
- How ?
  - which instrument, UT / AT ... Why ?
  - special constraint (epoch, baseline, seeing...)
  - preparatory observations if any
  - calibrators

Kind of target / instrument

- Target:
  - A real one
  - A fictive one
    - reasonably plausible
    - how would you find it
- Instrument:
  - PIONIER
  - AMBER
  - MIDI / MIDI+FSU

- Call for proposal opens now.

- Deadline: Thursday @ 9 pm
- Submission (pdf) via email:

paladini@ulb.ac.be

Good luck & Thanks for not sleeping

(You can wake up now)