

PHY 517 / AST 443: Observational Techniques in Astronomy

Lecture 6:

Proposals
Time Allocation Committees
Final Presentations

Telescope time proposals

- writing (successful) proposals is an essential part of being a researcher
- ... at the latest, when you need to apply for funding
- observational astronomers need to submit proposals for telescope time

Example: Hubble Space Telescope

- proposal deadline once per year (~April)
- typically ~1000 proposals
- ~20% success rate
- open to anyone

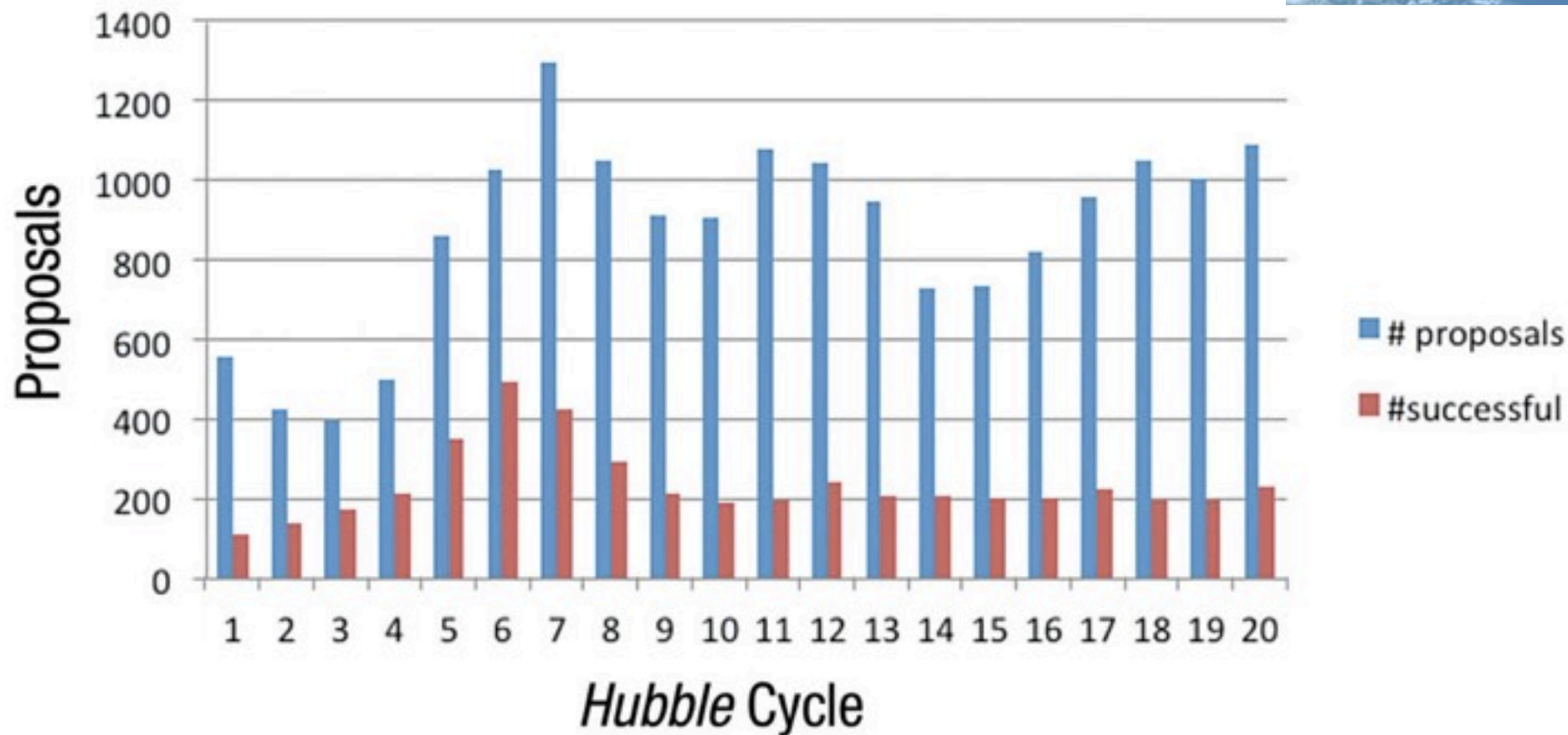


Figure 1: *Hubble* proposal pressure by number of proposals. The blue histogram shows the number of proposals submitted each cycle; the red shows the number accepted. The Cycle 7 statistics include the cycle 7N and 7AR proposals. The oversubscription ranges from 2:1 in Cycle 6 to more than 5:1 since SM4.

NOAO

- NOAO = National Optical Astronomical Observatories
- US national research & development center for ground-based night-time astronomy
- manages most telescopes with US-wide access
- own facilities: Kitt Peak National Observatory (KPNO, Arizona), Cerro-Tololo Inter-American Observatory (CTIO, Chile)
- Calls for Proposals 2x per year; deadlines end of September and end of March



ESO

- ESO = European Southern Observatory
- manages the Very Large Telescope (VLT; Chile)
- also open to anyone; preference for European projects only in direct conflicts
- Calls for Proposals 2x per year; deadlines end of September and end of March



ALMA

- ALMA = Atacama Large Millimeter Array
- multi-national project
- proposals through respective managing facilities, e.g. for US: NRAO = National Radio Astronomy Observatory
- proposals ~ 1 x per year



Other

- some facilities are not open-access, but only available to researchers at the institutions / countries who built / finance them
- for example:
 - Keck telescopes (mostly CalTech, University of California + University of Hawaii)
 - Subaru telescope (mostly Japan + University of Hawaii)



How to write a good proposal

- come up with a good idea!
- check:
 - has it been done before?
 - is the data already in a telescope archive?
- research what are the best instruments to use
 - sensitivity
 - field of view
 - resolution
 - ...
- figure out the technical details
 - what filters / gratings / bands
 - exposure times
 - observability

Proposal Structure

- cover sheet
 - abstract
 - PI and Col names, addresses
 - time request
 - telescope / instrument / set-up request
- Scientific Justification
 - usually limited, 1-4 pages
- Technical Justification
- Figures, Tables, References, Object lists

Scientific Justification

- describe your project to a knowledgeable, but non-expert audience
- make it exciting / important!
- build on (your) previous work / experience - make sure to convey that you have done all the preparations
- polish the text - typos and carelessness are distracting

Technical Justification

- describe your proposed observational set-up in detail
- explain every part (telescope, instruments, filter, etc.)
- most important: explain and document the exposure time request
- most instruments have Exposure Time Calculators to relate signal-to-noise and exposure time

Time Allocation Committees

- proposals are reviewed by panels of researchers, chosen by the responsible agencies (e.g. HST - STScI)
- panels are assembled by topical groups (e.g. cosmology)
- every panelist has to read every proposal assigned to that panel, typically ~80
- preliminary grades submitted online
- 2-day meetings to discuss all proposals and finalize grades

AST 443 / PHY 517 proposals

options:

- write a proposal for one of the labs, using our equipment
 - another exoplanet?
 - saw something interesting - need more data for your original target?
 - your observations didn't work - need to re-do the lab?
- write a proposal on something different, using our equipment
- write a proposal for any telescope / instrument

AST 443 / PHY 517 proposals

deadline: **Nov 15, 5pm** (strict!)

proposal template available on github:

https://github.com/anjavdl/PHY517_AST443/wiki/Proposals

AST 443 / PHY 517 TAC

- date of TAC meeting: Nov 27
- (probably) 3 panels: imaging, spectroscopy, radio
- we will assign you to a panel
- make sure you are ready to critically assess and discuss your peer's proposals

Final presentations

- last assignment in class: make a poster / give a presentation on one of your labs
- graduate students: make a poster + 1 minute “lightning talk”
- undergraduates: give a presentation; 10 minute talk + 5 minutes questions
- your presentation has to be on a lab other than the one you wrote your proposal on
- Dec 4 + Dec 6