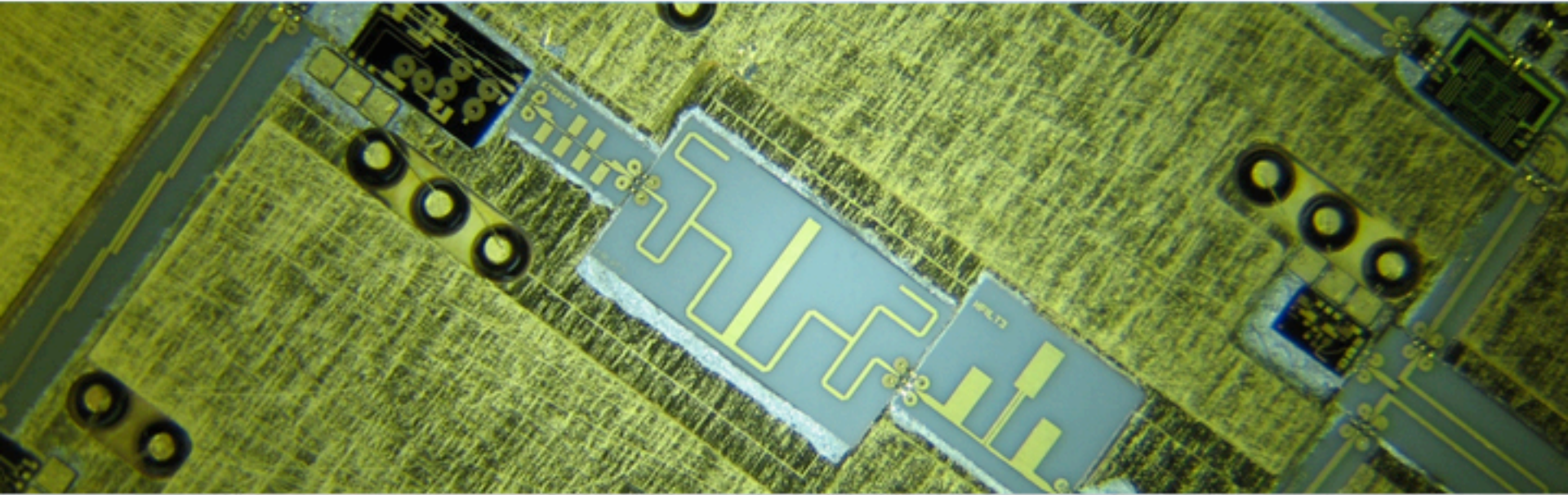


Telescope Time Allocation at NRAO

Semester Based. Community Driven.



Joan Wrobel

TTA Division Head

VLA Scheduling Officer

Atacama Large Millimeter/submillimeter Array

Karl G. Jansky Very Large Array

Robert C. Byrd Green Bank Telescope

Very Long Baseline Array



Telescope Time Allocation – Workflow Overview

DL – 4 weeks	Release Call for Proposals
Deadline (DL)	Receive proposals at nominal deadlines of 2/1 and 8/1
DL + 1 week	Release proposals for individual science reviews by Science Review Panels (SRPs) and for individual technical reviews by NRAO staff
DL + 5 weeks	Enter individual reviews online or offline
DL + 6 weeks	Each SRP uses individual reviews to draft consensus comments for its proposals
DL + 8 weeks	Each SRP meets by telecon to finalize the ranking and consensus comments for its proposals
DL + 9 weeks	Release merged rankings to Time Allocation Committee (TAC)
DL + 12 weeks	TAC face-to-face meeting occurs
DL + 14 weeks	Director's review occurs
DL + 15 weeks	Post TAC report and e-mail disposition letters to proposers
DL + 16 weeks	Post science program



Calls for Proposals

- Two calls per year
 - Submission deadline of Feb 1 for Semester B
 - Submission deadline of Aug 1 for Semester A
- Announced in NRAO eNews and AAS eNews
- Involve three proposal types
 - Regular: Proposals that request < 200 hours total observing time on the GBT, VLA and/or VLBA
 - Large: Proposals that request ≥ 200 hours total observing on the GBT, VLA and/or VLBA
 - Triggered: Proposals for pre-planned observations of transients whose event times are unknown *a priori*. Well-defined triggering criteria are required.
- Document new policy and applicable telescope capabilities



Tools for Proposers

- Proposal Finder Tool
 - Search approved proposals to see authors, titles, abstracts and approved hours. Such info may help guide new proposals.
- Archive Access Tool
 - Search archived data and use those data to leverage new proposals
- Exposure Calculator Tools
 - Estimate exposure times and sensitivities. One tool per telescope.
- Proposal Submission Tool (PST)
 - Prepare, copy, share, validate and submit proposals
 - Also used for proposal review and time allocation
 - Time requests and thus allocations expressed as sessions
- Helpdesk



Science Review Panels (SRPs)

- Eight science categories, with each category covered by one SRP

Solar system, stars, planetary systems	Galaxies, continuum
Energetic transients, pulsars	Galaxies, line
Galactic star formation	Active galactic nuclei
Galactic interstellar medium	High redshift, source surveys

- Each proposal suggests a science category. NRAO vets suggestion.
- Each SRP asked to review and produce a rank-ordered list of its proposals
- Each SRP consists of one chair and five panelists
 - Recruited from scientific community
 - Volunteer their services for two-year terms
 - One panelist may be from NRAO staff
- SRP chair also serves on the Time Allocation Committee



Individual Science Reviews

Workflow and Deliverables

- 48 reviewers are SRP panelists or chairs. Each reviewer
 - Consults instructions, guidelines and policy on non-disclosure and conflicts-of-interest
 - Uses PST to self-declare conflicts and access un-conflicted proposals
 - Works online or offline to review scientific merit of ~50 proposals
 - Assigns raw scores [0.1,9.9] with 0.1 being an outstanding proposal
 - Enters brief comments to justify the assigned raw scores
- Each proposal has ≤ 5 reviewers. Chair reviews for conflicted panelists.
- Each SRP completes all its individual reviews. NRAO then uses PST to package reviews for use during that SRP's telecon
 - Normalize each reviewer's raw scores to an average of 5 and s.d. of 2
 - Then calculate each proposal's average normalized score and s.d.



Individual Technical Reviews

Workflow and Deliverables

- Reviewers are NRAO staff. Each reviewer
 - Consults instructions, guidelines and policy on non-disclosure and conflicts-of-interest
 - Uses PST to self-declare conflicts and access un-conflicted proposals
 - Works online or offline to review technical feasibility of ~15 proposals
 - Enters cue-based comments on Technical Justification portion of proposals
- Each proposal usually has one reviewer but sometimes two
- Once all technical reviews are completed, NRAO uses PST to package reviews for use during SRP telecons



Science Review Panel Telecons

Workflow and Deliverables - I

- Before each SRP's telecon
 - Doodle poll to schedule telecon in two 3-hour chunks
 - Chair assigns primary presenter for each proposal
 - Primary consults instructions, guidelines and telecon package in PST
 - Primary uses individual science reviews and technical review to draft cue-based consensus comments for proposers
 - SRP alerted to potential source conflicts among its proposals
- During each SRP's telecon
 - Preliminary proposal ranking set by averaged normalized scores
 - Proposals are presented and discussed until consensus achieved
 - If deemed necessary, chair can edit a proposal's score, thus rank
 - Eg, boost rank of a proposal critical for a dissertation plan



Science Review Panel Telecons

Workflow and Deliverables - 2

- After each SRP's telecon
 - Chair certifies their SRP's work
 - NRAO packages that work for use by the Time Allocation Committee (TAC)
 - Final ranking of its N proposals defines linear-rank score (0-10]
 - Proposals are ranked $R = 1, 2, \dots, N$
 - Proposal acquires linear-rank score $10 \cdot R / N$
- Linear-rank scores from all SRPs are then merged for TAC use
- Quartile boundaries are 2.5, 5.0 and 7.5



Time Allocation Committee

Workflow and Deliverables - I

- 8 TAC members are SRP chairs
- Time requests and thus allocations expressed as sessions
- Telescopes are predominantly dynamically scheduled
- TAC asked to assign dynamic scheduling priorities to sessions

A = almost certainly scheduled	C = scheduled as filler
B = scheduled on best effort basis	N = not scheduled

- Assigned priorities will depend on
 - Time available as a function of LST for each telescope
 - Linear-rank score of the proposal, LSTs involved in the session, total time requested in the session, and competition from better-ranked proposals requesting time at similar LSTs



Time Allocation Committee

Workflow and Deliverables - 2

- NRAO assigns preliminary scheduling priorities to Large and Regular proposals
- TAC meets via telecon for ~0.5 days
 - Considers Large proposals
 - Assigns final scheduling priorities to their sessions
- NRAO re-assigns preliminary scheduling priorities to Regular proposals
- TAC meets face-to-face for ~1.5 days
 - Considers Regular and Triggered proposals
 - Assigns scheduling priorities to their sessions
 - Examines consequences of those assignments
 - Proposal Handling Tool (PHT) supports these functions
 - TAC converges on a recommended science program



Iterate until
satisfied



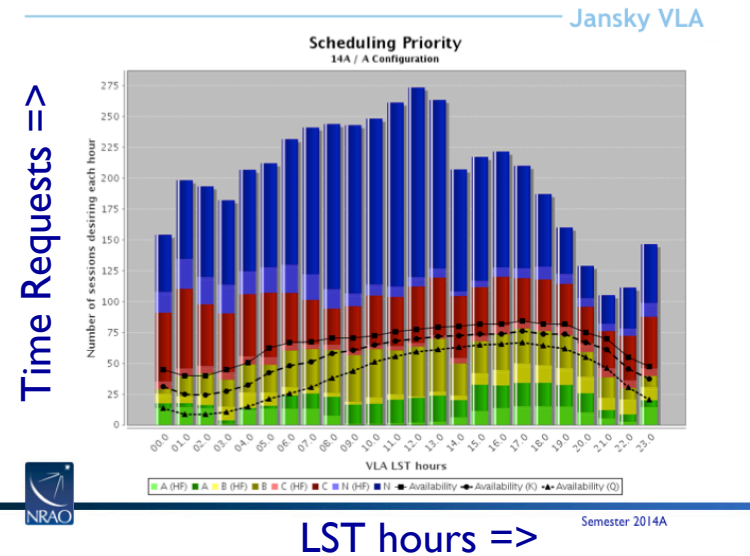
Director's Review

- NRAO Director and advisors meet to review the science program recommended by the TAC
- Usually the recommended science program is approved without change
- If the Director's Review results in a change to the recommended science program, the change and its justification are documented and forwarded to the AUI President for review



TAC Report and Proposal Dispositions

- PHT used to assemble TAC Report
 - Statistics and pressure plots. Eg.
- PHT used to assemble and e-mail disposition letters to proposers
 - Linear-rank score
 - TAC comments
 - SRP consensus comments
 - Technical review
 - Time allocations expressed as sessions and their scheduling priorities
 - Link to posted TAC report
- PST used to store disposition letters for proposer access

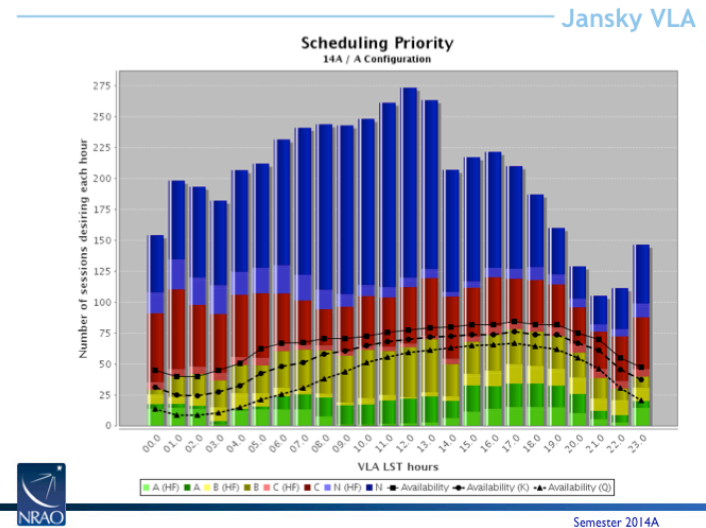


Semester	Letters E-mailed
B	Mid-May
A	Mid-November in NSF AAG window



Science Program

- PHT used to assemble a list of approved proposals
- Proposal Finder Tool given searchable access to approved proposals
- List of approved proposals posted and announced in NRAO eNews
- For each telescope, the scheduling officer is then responsible for discharging the approved proposals
 - Eg



Telescope Time Allocation – Workflow Overview

DL – 4 weeks	Release Call for Proposals
Deadline (DL)	Receive proposals at nominal deadlines of 2/1 and 8/1
DL + 1 week	Release proposals for individual science reviews by Science Review Panels (SRPs) and for individual technical reviews by NRAO staff
DL + 5 weeks	Enter individual reviews online or offline
DL + 6 weeks	Each SRP uses individual reviews to draft consensus comments for its proposals
DL + 8 weeks	Each SRP meets by telecon to finalize the ranking and consensus comments for its proposals
DL + 9 weeks	Release merged rankings to Time Allocation Committee (TAC)
DL + 12 weeks	TAC face-to-face meeting occurs
DL + 14 weeks	Director's review occurs
DL + 15 weeks	Post TAC report and e-mail disposition letters to proposers
DL + 16 weeks	Post science program





The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.

www.nrao.edu • science.nrao.edu

