

Observation Scheduling

Review of SSS Software Readiness for SRO, June 5, 2009



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Atacama Large Millimeter/submillimeter Array
Expanded Very Large Array
Robert C. Byrd Green Bank Telescope
Very Long Baseline Array



Scheduler

- Takes pool of available Scheduling Blocks (SBs) and chooses what should be observed next on the telescope
- Must take into account scientific priority, current observing conditions, and other priority modifiers (project completion pressure, for example)
- Must be able to run autonomously, eventually, but not a requirement for SRO

Current Scheduling

- The transition VLA is scheduled via a combination of fixed-time scheduling and dynamic scheduling
- The determination of fixed and dynamic time is determined manually, first for the trimester, then each month, based on the proposals for that trimester (Joan Wrobel does this)
- Web presence at:
<http://www.aoc.nrao.edu/~schedsoc>

Example Monthly Schedule

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
V L A S C H E D U L E F O R J U N E 2 0 0 9	D	:	BM 296 Miller-Jones et al.	:							:Dynamic:	:			AM 987 Mellis et al.	:					Dyn	:	AV 313	:		1	61705	JUNE 2009
1 M	:	AV 313	:												:Dynamic:	:					AS 977 Stanonik et al.	:	tst	:		2	61706	VLA SCHEDULE
2	tst/Mai	:			Maintenance	:															Electronics/Software/Pointing	:		:		3	61707	PRELIMINARY
3 W	E/S/P	:			Maintenance	:									Startup	:					AG 21 Quinn et al.	:		AV 313	:	4	61708	
4	:	AV 313	:												Dynamic	:					AB 1324 Bartkewicz et al.	:		Dyn	:	5	61709	
5 F	:		:																		AB 1324 Bartkewicz et al.	:		Dyn	:	6	61710	
6	:																				AW 755 Walker et al.	:				7	61711	
7	:																									8	61712	
8 M	:																									9	61713	
9																										10	61714	
10 W	tst/Maint	:																								11	61715	
11																										12	61716	
12 F	:																									13	61717	
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14	:																									15	61719	Reconfiguration begins
15 M	:																									16	61720	
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26 F	:																									27	61731	
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28																										29	61733	
29 M																										30	61734	
30	D04	tst/Maint	:																							1	61735	
1 W	Elec/softw/ptng	:																								2	61736	

Scheduling Details - Current

- Observers use `jobserve` to set up their observations, the resultant OBSERVE files (written in durations with extra header information) are submitted and converted into pseudo-SBs (the OBSERVE file itself is retained with a link)
- The project code links each pseudo-SB to a database of priorities and other information entered after the Proposal Selection Committee meets
- When the operator sees dynamic time, they run a command line program that searches the pool of pseudo-SBs for the best fit for the time slot (given priorities, duration of blocks, and current observing conditions)
- The program presents a prioritized list of pseudo-SBs which the operator can then choose from
- After chosen, the OBSERVE file connected to the pseudo-SB is converted to a script to be submitted to the Executor via a command line program (*obs2script*)

Scheduling Details - SRO

- Observers use the OPT to set up their observations, the result is an SB (conforming to a model), stored in a database
- The OPT creates a pseudo-SB which links to this SB
- When the operator sees dynamic time, they run a command line program that searches the pool of pseudo-SBs for the best fit for the time slot (given priorities, duration of blocks, and current observing conditions)
- The program presents a prioritized list of pseudo-SBs which the operator can then choose from
- After chosen, the SB connected to the pseudo-SB is converted to a script to be submitted to the Executor via a command line program (*model2script*)

Scheduling Details - Status

- The model is well-defined and has been used by the OPT for some time
- The storage of the pseudo-SBs into the scheduler pool has been tested and verified to work in some cases
- The *model2script* program has been written and verified to work
- The execution of *model2script* by the command line scheduler has been tested and works in some cases

However - we have found instances where the integrated system does not work currently. We are working hard to fix this as it is the only remaining piece of the scheduling to be completed.