



Green Bank Observatory/ RadioAstron MoU Report



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Outline

- Update on the status of the Green Bank Observatory
- Status of the GBO MoU for GBT observations
- Statistics of GBO SRT observations
- MoU issues going forward



Green Bank Observatory

- Officially separated from NRAO as of October 1, 2016
- Operated by Associated Universities Inc.
 - Remains an NSF Facility
 - Green Bank Observatory operating under a two-year Cooperative Agreement with NSF
 - Through September 2018, then:
 - Re-competed or
 - Extended



Funding Model

- With divestiture, GBO moves from a fully-funded NSF Facility



- A hybrid funding model with
 - NSF/Open Skies (~60% in FY 17)
 - GBT Time sales (e.g. Breakthrough Listen)
 - Site and other telescope sales (e.g. RadioAstron)



Governance

- Advisory counsel
 - Major GBT contract time users
 - Meet quarterly, more often if required
 - Provide guidance on how to balance Open Skies and paid observing
 - Strategic perspectives
 - Suggest alternative funding possibilities
- GBO/AUI remains accountable to NSF



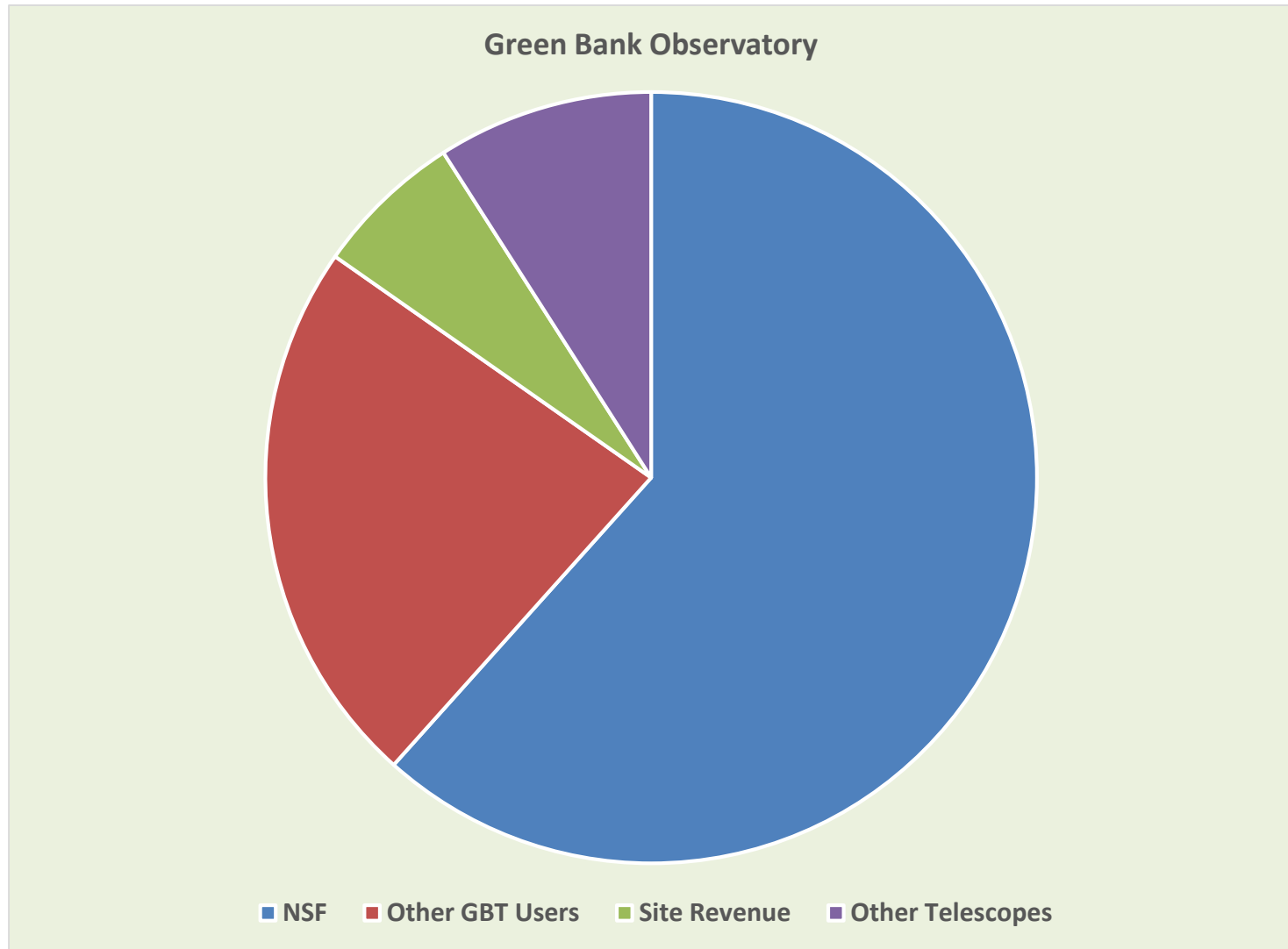
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Telescope Operations (2017)

- Commercial Operations
 - ~15% of time for commercial use
 - Includes communications/downlink work
- Science Operations – Open Skies
 - ~60+% of time for Open Skies
 - Shares NRAO proposal call schedule and tools
- Science Operations – Contracted Time
 - ~25% of GBT time is contracted
 - Observing and passive radar activities



Telescope Operations (2017)



2017 - 2025

- Funding steady through FY18 (so far...)
- Environmental Impact Statement Report status:
 - Draft expected out in June/July time frame
 - Additional round of comments
 - Final report late '17/early '18
- NSF decision about the facility pending
 - Expected late 2017/early 2018
 - Possible 2019 re-compete for management



2017 - 2025

- Workshop this fall (October 16-20) to discuss/decide:
 - Science case for GBT in 2020-2030
 - Science case and collaborations for new site instrument(s)
 - Focused on “Open Skies” use of facility



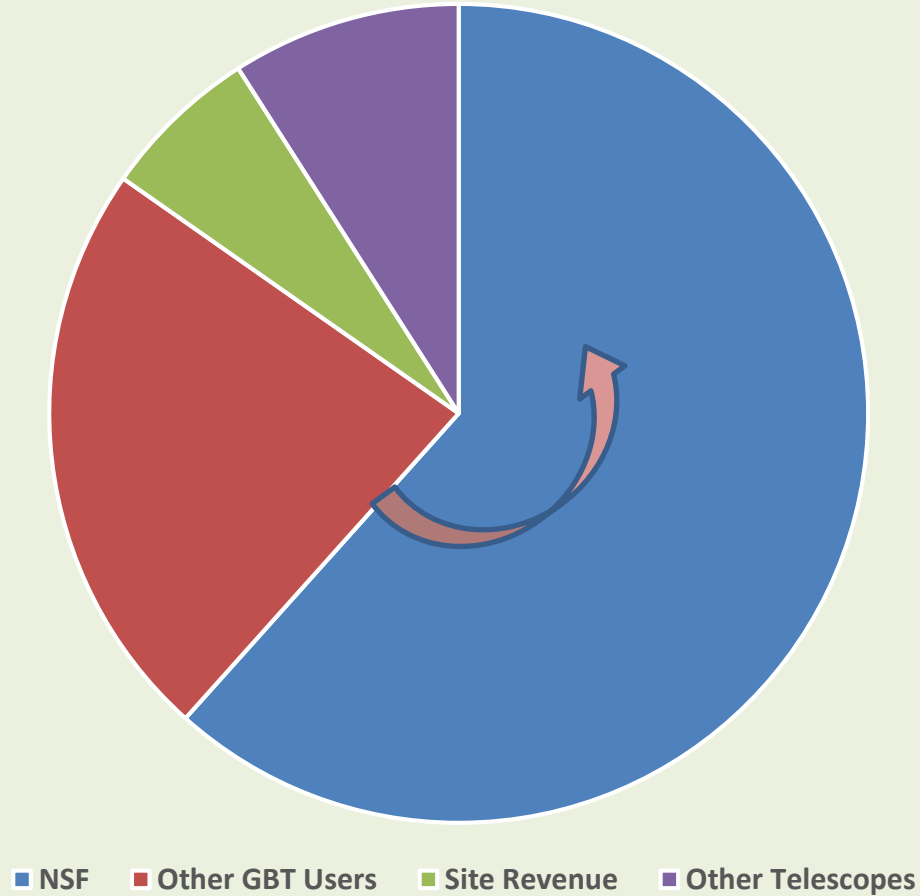
2017 – 2025

- Continuing to look for 1-2 new partners to fund facility
 - Partnerships need to be in place within one(!) year
 - Scientific partnerships preserve “open skies” time best
 - Aid and ideas in this area are welcome



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Green Bank Observatory



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GBO Future (post 2018)

- Likely have reduced fraction of NSF funded open skies time
 - 30%? 50%? Still TBD
- Other programs may have significant impact of time availability for astronomical research
 - Programs needing regular observations at the same time (LST or clock) put significant constraints on scheduling
 - This concern must be balanced against the need for continued funding



Futures: The Site

- Continued use of the majority of existing site telescopes
 - Astronomical and other research as primary uses
- Addition of 1-2 new major astronomy facilities
 - Small arrays which can be run independently
 - Located in Green Bank for:
 - Radio quiet zones, Operational cost savings, Science overlap with GBT



ASC MoU for GBT - RadioAstron Observations

- Provides time on GBT for purpose of joint observations with RadioAstron (RA)
 - In addition to time granted to international RA users through NRAO's open peer review time allocation process
- Official MoU ended in November 2017
 - 150 hours per year
- Informal extension granted
 - Additional 75 hours by July 2017



MoU Observations to Date

MoU Year	Instrument	Maximum MoU Time	Scheduled Time	Percentage of MoU Maximum
Year #1	GBT	150 hrs.	107:15 Hrs.	72%
	VLBA	50 Hrs.	8:30 Hrs. ¹	17%
Year #2	GBT	150 hrs.	129:30 Hrs.	85%
	VLBA	50 Hrs.	6:45 Hrs.	13%
Informal Extension	GBT	75 hrs.	70:30 Hrs.	94%
	LBO (VLBA)	0 Hrs.	-	-
<i>Total to date:</i>			<i>322:30 Hrs.</i>	<i>68%</i>
<i>GBT to date:</i>			<i>307:15 Hrs.</i>	<i>82%</i>



Divestiture's Effect on MoU

- GBO required to seek funding (contracts) for operations from partners
 - Contract GBT time reduces time available for “open skies” proposals (source of MoU time)
 - Paid time takes priority,
 - Sometimes at expense of highly ranked peer-reviewed and MoU proposals
 - Increasingly hard to schedule fixed-time projects
- One-hour pacing of RA observations complicates GBT scheduling



MoU Future

- ASC placed request to increase to 200 GBT hours per year coordinated with request to Roscosmos to extend RA through 2019
 - August 2017 – January 2019
- GBO agrees to draft a new MoU with the increased hours for the above period
 - Requests some RA scheduling considerations to improve GBT utilization around the MoU observations





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greenbankobservatory.org

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