

Exercise Your Mind

National Radio Astronomy Observatory
Green Bank, West Virginia

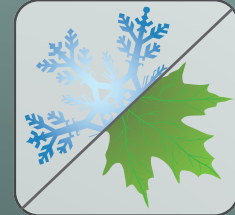


The National Radio Astronomy Observatory in Green Bank, West Virginia is a proud sponsor of the International Year of Astronomy.

Visit the Robert C. Byrd Green Bank Telescope, the world's largest fully steerable radio telescope.



Public Tour Schedule 2009



Winter & Spring Hours

November 1st through Friday before Memorial Day

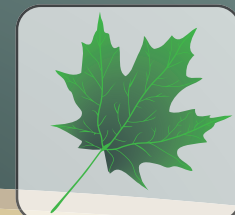
Open Thursday – Monday*
10:00 a.m. — 5:00 p.m.

Starlight Cafe open 11:00 a.m. – 5:00 p.m.

FREE Public Tours at

11:00 a.m., 1:00 p.m. & 3:00 p.m.

*Closed: Thanksgiving Day, Friday after Thanksgiving, Christmas Eve, Christmas Day, New Years Eve, New Years Day, and Easter Sunday



Summer Hours

Memorial Day weekend through Labor Day

Open Daily
8:30 a.m. — 7:00 p.m.

Starlight Cafe open 11:00 a.m. – 7:00 p.m.

FREE Public Tours at

the top of each hour
9:00 a.m. — 6:00 p.m.



Fall Hours

Tuesday after Labor Day through October

Open Thursday – Monday
8:30 a.m. — 7:00 p.m.

Starlight Cafe open 11:00 a.m. – 7:00 p.m.

FREE Public Tours at

the top of each hour
9:00 a.m. — 6:00 p.m.

Green Bank Science Center

Come enjoy the Green Bank Science Center, featuring hands-on exhibits and displays that introduce you to the science of radio astronomy while you play! Discover what radio waves are, how the Green Bank Telescope works, and what radio astronomers are learning about the universe. Admission to the Science Center is free!

The Green Bank Science Center is the starting point for your free guided tour of the *National Radio Astronomy Observatory* (NRAO) site. Browse the Galaxy Gift Shop or grab a bite to eat at the Starlight Cafe before or after your tour. The free guided tour includes educational demonstrations, a film on radio astronomy and a bus tour through the research telescope area. The bus tour includes a final stop at the Robert C. Byrd Green Bank Telescope, the largest fully steerable radio telescope in the world!



Simple film cameras are welcome all over the NRAO site, but digital cameras, or 35mm cameras with advanced electronics, cannot be used near the telescopes. Digital cameras and other electronics create radio pollution which can ruin astronomers' data. We thank you for your understanding and for helping us provide quiet skies at Green Bank.

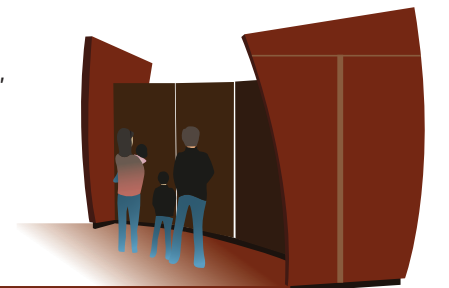
Organized Group Tours

Motor coach groups are welcome. Tours can be scheduled any day of the week. For your convenience, and to guarantee a guided tour, please make advance reservations. A \$2 fee per person is required for motor coach tours. Group meals also available.

School and scout groups are welcome. Tours can be scheduled any day of the week. We can tailor a program to your group. Tour reservations are free for organized school and scout groups, but please call in advance to make tour arrangements.

Informal groups are welcome. If your group is traveling by car, we will incorporate your group into the regularly scheduled public tours. If you have a group of 20 or more people, we appreciate knowing in advance.

For additional group details and reservations, contact the tour director by calling **(304) 456-2164** or by email at **gbt-tours@nrao.edu**



NRAO 2009 Special Events Calendar

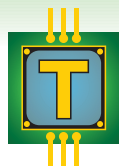
2009 is the International Year of Astronomy (IYA), commemorating the 400th anniversary of Galileo's use of a telescope to study the skies. IYA is an international celebration consisting of events all over the world. Join us each month at NRAO for IYA related events! All events take place at the Green Bank Science Center.

Monthly Star Party



All star parties begin at dusk. This event is FREE. No reservations required. NRAO staff will introduce guests to the night sky. At dark, join us on the Star Party Patio for observing with optical telescopes. Cloudy skies will cancel night sky viewing. IYA activities will be offered regardless of weather.

High Tech Thursdays



November through May
2nd Thursday of each month at 3:30 p.m.
June through October
2nd & 4th Thursday of each month at 3:30 p.m.
\$3 per person; reservations required. Join us for a guided tour through parts of NRAO normally off limits to visitors, like lab areas where sensitive receivers are designed and built. Space is limited to 15 participants per program. Time: approximately 1 hour.

Star Lab Fridays



Every Friday at 2:00 p.m.
\$3 per person; reservations required. Guests will gather under a planetarium balloon for a fascinating look at the night sky. Space is limited to 15 participants per program. Time: approximately 1 hour.

**For event reservations, call
304-456-2150**

Dates subject to change without notice.



Each month on Star Party days, the Science Center will host IYA hands-on activities exploring the monthly theme. The activities will be offered in the afternoon prior to Star Parties. Activities last approximately 30 minutes; reservations not necessary.

- *May through October* activities at 2:30 p.m., 4:30 p.m. & 6:30 p.m.
- *November through April* activities at 2:30 p.m. & 4:30 p.m.

For more information about our IYA activities, visit the Night Sky Network at <http://nightsky.jpl.nasa.gov>

January 2009

Telescopes and Space Probes: Today's Starry Messengers

	2	Star Lab – 2 p.m. reservations required
	8	High Tech Tour – 3:30 p.m. reservations required
	9	Star Lab – 2 p.m. reservations required
	16	Star Lab – 2 p.m. reservations required
	23	Star Lab – 2 p.m. reservations required
	24	Star Party & IYA activities
	30	Star Lab – 2 p.m. reservations required

February 2009

Our Solar System

	6	Star Lab – 2 p.m. reservations required
	12	High Tech Tour – 3:30 p.m. reservations required
	13	Star Lab – 2 p.m. reservations required
	20	Star Lab – 2 p.m. reservations required
	27	Star Lab – 2 p.m. reservations required
	28	Star Party & IYA activities

March 2009

Observing at Night... and in the Day

	6	Star Lab – 2 p.m. reservations required
	12	High Tech Tour – 3:30 p.m. reservations required
	13	Star Lab – 2 p.m. reservations required
	20	Star Lab – 2 p.m. reservations required
	21	Star Party & GLOBE at NIGHT
	27	Star Lab – 2 p.m. reservations required

April 2009

Galaxies and the Distant Universe

	3	Star Lab – 2 p.m. reservations required
	4	100 Hours of Astronomy Webcast
	9	High Tech Tour – 3:30 p.m. reservations required
	10	Star Lab – 2 p.m. reservations required
	17	Star Lab – 2 p.m. reservations required
	24	Star Lab – 2 p.m. reservations required
	25	Star Party & IYA activities

May 2009

Our Sun

		Lunar Reconnaissance Orbiter activity - TBD
	1	Star Lab – 2 p.m. reservations required
	8	Star Lab – 2 p.m. reservations required
	14	High Tech Tour – 3:30 p.m. reservations required
	15	Star Lab – 2 p.m. reservations required
	16	Star Party & IYA activities
	22	Star Lab – 2 p.m. reservations required
	29	Star Lab – 2 p.m. reservations required

Radio image of the Sun. Image courtesy of NRAO/AUI and Image courtesy of Stephen White, University of Maryland, and of NRAO/AUI.

June 2009

Clusters of Stars

	5	Star Lab – 2 p.m. reservations required
	11	High Tech Tour – 3:30 p.m. reservations required
	12	Star Lab – 2 p.m. reservations required
	19	Star Lab – 2 p.m. reservations required
	25	High Tech Tour – 3:30 p.m. reservations required
	26	Star Lab – 2 p.m. reservations required
	27	Annual Star Quest Star Party & IYA activities

Image courtesy NASA/JPL-Caltech/J. Stauffer (SSC/Caltech)

www.greenbankstarquest.org

Each month on Star Party days, the Science Center will host IYA hands-on activities exploring the monthly theme. The activities will be offered in the afternoon prior to Star Parties. Activities last approximately 30 minutes; reservations not necessary.

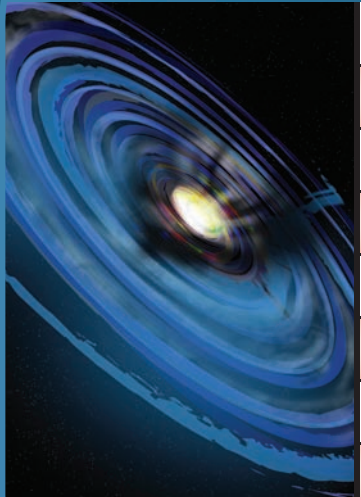
- **May through October** activities at 2:30 p.m., 4:30 p.m. & 6:30 p.m.
- **November through April** activities at 2:30 p.m. & 4:30 p.m.

For more information about our IYA activities, visit the Night Sky Network at <http://nightsky.jpl.nasa.gov>.



July 2009


Black Holes



3		Star Lab – 2 p.m. reservations required
9		High Tech Tour – 3:30 p.m. reservations required
10		Star Lab – 2 p.m. reservations required
17		Star Lab – 2 p.m. reservations required
18		Star Party & IYA activities
23		High Tech Tour – 3:30 p.m. reservations required
24		Star Lab – 2 p.m. reservations required
31		Star Lab – 2 p.m. reservations required

August 2009


Rocks and Ice in the Solar System



7		Star Lab – 2 p.m. reservations required
13		High Tech Tour – 3:30 p.m. reservations required
14		Star Lab – 2 p.m. reservations required
21		Star Lab – 2 p.m. reservations required
22		Star Party & IYA activities
27		High Tech Tour – 3:30 p.m. reservations required
28		Star Lab – 2 p.m. reservations required

September 2009


Planets and Moons



4		Star Lab – 2 p.m. reservations required
10		High Tech Tour – 3:30 p.m. reservations required
11		Star Lab – 2 p.m. reservations required
11-13		Boy Scout Merit Badge Weekend
18		Star Lab – 2 p.m. reservations required
18-20		Girl Scout Merit Badge Weekend
24		High Tech Tour – 3:30 p.m. reservations required
25		Star Lab – 2 p.m. reservations required
26		Star Party, Telescope Clinic, & IYA activities

October 2009

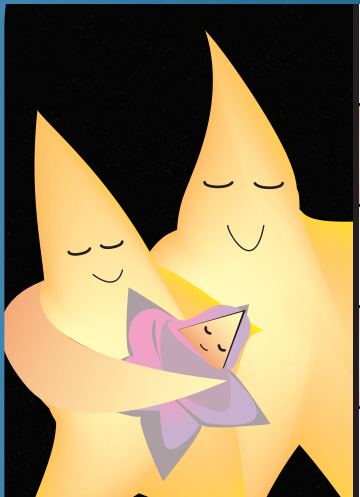
What is the Fate of the Universe?



2		Star Lab – 2 p.m. reservations required
8		High Tech Tour – 3:30 p.m. reservations required
9		Star Lab – 2 p.m. reservations required
16		Star Lab – 2 p.m. reservations required
17		Star Party & IYA activities
22		High Tech Tour – 3:30 p.m. reservations required
23		Star Lab – 2 p.m. reservations required
25		Annual Community Open House
30		Star Lab – 2 p.m. reservations required

November 2009


The Lives of Stars



6		Star Lab – 2 p.m. reservations required
12		High Tech Tour – 3:30 p.m. reservations required
13		Star Lab – 2 p.m. reservations required
14		Star Party & IYA activities
20		Star Lab – 2 p.m. reservations required

December 2009

Discovering New Worlds



4		Star Lab – 2 p.m. reservations required
10		High Tech Tour – 3:30 p.m. reservations required
11		Star Lab – 2 p.m. reservations required
12		Star Party & IYA activities
18		Star Lab – 2 p.m. reservations required

Dates subject to change without notice.

Galaxy Gift Shop



The Galaxy Gift Shop offers a wide range of unique t-shirts and logo apparel & items, an assortment of science & astronomy books, star charts, science kits and educational toys. Celestial themed marbles, accessories, jewelry and hand-blown WV glass ornaments are just a few of the custom items guests will find in the gift shop. The Galaxy Gift Shop also features ORION telescopes, accessories and products.

Galaxy Gift Shop304-456-2151

Full Moon Sales

25% off select items

Feb. 9, March 12, April 9, May 9, Nov. 2, Dec. 3

Starlight Cafe

The Starlight Cafe offers deli sandwiches & wraps, salads, hot dogs & burgers, nachos & soft pretzels, soft-serve ice cream treats and an assortment of snack foods.

Motor coach groups, school & scout groups and other general groups: take advantage of our group menus & pricing! Pricing applicable to:

- Guarantee of 20 or more people
- Minimum of 2 weeks advance notice
- Box lunches & buffet options offered

For more information contact our cafe manager at 304-456-2361 or twarder@nrao.edu

The Starlight Café is open:
 Winter & Spring Hours11:00 a.m. – 5:00p.m. Thurs. – Mon.
 Summer Hours11:00 a.m. – 7:00 p.m. Daily
 Fall Hours11:00 a.m. – 7:00 p.m. Thurs. – Mon.

GBT Fast Facts



Size comparison of the GBT on the national mall, next to the Washington Monument in Washington D.C.

- The telescope helps us learn about stars, galaxies and other objects in the Universe by collecting the radio waves they emit.
- The telescope is 485ft (148m) tall - taller than the Statue of Liberty and nearly as tall as the Washington Monument.
- It weighs 17 million lbs (7.7 million kg) - as much as 20 fully loaded Boeing 747s.
- Despite its weight, the GBT can be pointed with an accuracy of one arcsecond. That's equivalent to the width of a human hair seen from 66 feet (20m) away.
- The GBT's surface is made up of 2004 metal panels, and is almost 2.3 acres (8000m²) the same size of two football fields.
- The telescope works both night and day - the radio waves it collects are not drowned out by the sun.
- The telescope is designed to handle a great range of wave-lengths from 9ft (3m) long down to 1/8th inch (3mm).
- The telescope only receives signals from space, never sends them.

Getting Here



The National Radio Astronomy Observatory Green Bank is located in Pocahontas County on Route 92/28 about 25 miles north of Marlinton, 53 miles south of Elkins, and 65 miles west of Staunton, VA.

National Radio Astronomy Observatory

PO Box 2

Green Bank, WV 24944

(304) 456-2150 – Tour Center

<http://www.gb.nrao.edu>

gbt-tours@nrao.edu

West Virginia
Wild and Wonderful



NRAO is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.