

Night Sky Festival at Shenandoah National Park
Thursday, July 28 to Sunday, July 31, 2016

Celebrate the valuable resource of dark skies through guest presentations by astronomy experts, Ranger Programs, and viewing the beautiful night skies that Shenandoah National Park protects.

The weekend will include constellation tours, solar scope viewing, telescope viewing, children's activities and Junior Ranger programs, audio-visual presentations, star parties, hands-on activities, and more! Activities take place in a variety of locations throughout the Park.

Night Sky Junior Ranger Explorer books are available for free throughout the weekend and can be picked up at any of the festival activities, as well as Park visitor centers.

Events hosted by Shenandoah National Park & Delaware North at Shenandoah National Park

Thursday, July 28

- 8:30 p.m. **Big Meadows Evening Program: A Journey Through the Universe** – Join Ranger Kristin as we take a journey through the universe and discover celestial objects within and outside of our galaxy along the way. Dress for cool mountain nights. *Big Meadows Amphitheater (mile 51), 30 minutes, A, AL*
- 9:00 p.m. **James Webb Space Telescope: NASA's Successor to Hubble Space Telescope** – Join NASA JPL Solar System Ambassador Greg Redfern for an engaging presentation about the 2018 space telescope successor to Hubble Space Telescope (HST). Get up close and personal with the latest pictures and information direct from NASA. *Big Meadows Amphitheater (mile 51), 45 minutes, A, AL [Rain location: Big Meadows Lodge Massanutten Room]*
- 10:30 p.m. **"Under the Stars at Shenandoah National Park"** – If the sky is clear after the "JWST" presentation, visitors will move outdoors to see the night sky while listening to sky lore and fascinating sky facts! *Meet inside Rapidan Fire Road gate (mile 51)*

Friday, July 29

- 11:30 a.m. **The Wild Side of Shenandoah** – Celebrate one of Shenandoah's nighttime-loving animals at this short talk. *Byrd Visitor Center (mile 51), 20-30 minutes, A, AL*
- 3:00 p.m. **So, You Want To Be An Astrophotographer?** – Join NASA JPL Solar System Ambassador Greg Redfern for this engaging presentation that will teach the basics of how to photograph Shenandoah National Park and its night skies. *Byrd Visitor Center (mile 51), 45 minutes, A, AL*
- 4:00 p.m. **Loft Mountain Junior Ranger Program** – Discover the night sky at this hands-on program for ages 7 to 12. Children must be accompanied by an adult. *Loft Mountain Amphitheater (mile 79.5), 1.5 hours, less than 1-mile walk*
- 4:00 p.m. **Skyland Junior Ranger Program** – Discover the night sky at this hands-on program for ages 7 to 12. Children must be accompanied by an adult. *Skyland Amphitheater (mile 42.5), 1.5 hours, less than 1-mile walk*
- 7:30 p.m. **Evening Meadow Walk** – Investigate the meadow as day turns into night. *Byrd Visitor Center (mile 51), 1 hour, less than 1-mile walk, AL*
- 7:30 p.m. **Lewis Mountain Evening Program** – Join a Ranger for a night sky-themed evening program. Dress for cool mountain nights. *Lewis Mountain Picnic Grounds (mile 57.2), 45 minutes, A*

- 8:30 p.m. **Loft Mountain Evening Program: Exploring the Solar System and The Lunar Surface** – Join Ranger Alyssa to further understand how our solar system formed, how the planets are today, and why the moon is an important factor on Earth's tides and atmosphere. Dress for cool mountain nights. *Loft Mountain Amphitheater (mile 79.5), 45 minutes, A, AL*
- 8:30 p.m. **Skyland Evening Program: A Journey Through the Universe** – Join Ranger Kristin as we take a journey through the universe and discover celestial objects within and outside of our galaxy along the way. Dress for cool mountain nights. *Skyland Amphitheater (mile 42.5), 45 minutes, A, AL*
- 9:00 p.m. **Night Skies Program** – Join amateur astronomers as they present a provocative presentation on controlling light pollution as you gaze at the stars through telescopes. A blanket, chair, and flashlight are recommended. *Meet inside Rapidan Fire Road gate (mile 51)*

Saturday, July 30

- 11:30 a.m. **The Wild Side of Shenandoah** – Celebrate one of Shenandoah's nighttime-loving animals at this short talk. *Byrd Visitor Center (mile 51), 20-30 minutes, A, AL*
- 12:00 p.m. **Solar Viewing** – Stop by anytime between 12:00 p.m. and 2:00 p.m. to safely view our closest star through a solar scope and learn about the center of our solar system. *Byrd Visitor Center (mile 51)*
- 1:00 p.m. **Exploring the Solar System and The Lunar Surface** – Join Ranger Alyssa to further understand how our solar system formed, how the planets are today, and why the moon is an important factor on Earth's tides and atmosphere. *Byrd Visitor Center (mile 51), 45 minutes, A, AL*
- 2:30 p.m. **Centennial Ranger's Choice: Dark Night Skies** – Each National Park Service site protects special natural and cultural resources. Learn about the importance of dark night skies in our national parks. *Byrd Visitor Center (mile 51), 20-30 minutes, A, AL*
- 3:00 p.m. **Big Meadows Junior Ranger Program** – Discover the night sky at this hands-on program for ages 7 to 12. Children must be accompanied by an adult. *Byrd Visitor Center (mile 51), 1.5 hrs, less than 1-mile walk, AL*
- 4:00 p.m. **Loft Mountain Junior Ranger Program** – Discover the night sky at this hands-on program for ages 7 to 12. Children must be accompanied by an adult. *Loft Mountain Amphitheater (mile 79.5), 1.5 hours, less than 1-mile walk*
- 4:00 p.m. **Astronomy 101** – Join Auburn University Physics Professor Dr. Uwe Konopka to learn the basics of astronomy including the predicted views for the evening star party. *Byrd Visitor Center (mile 51), 1 hour, A, AL*
- 7:30 p.m. **Mathews Arm Ranger Talk: Hoots and Howls** – Join Ranger Denise and learn about things that go bump in the night at Shenandoah National Park. *Mathews Arm Campground (mile 22.2), 45 minutes, A*
- 8:30 p.m. **Big Meadows Evening Program: Why We Go To Mars** – Mars has been explored by more spacecraft than any other planet (except Earth) in the solar system. NASA has 4 spacecraft in orbit and 2 rovers on the ground that are operational. India has a spacecraft in orbit and the Europeans recently launched an orbiter and a lander to Mars. NASA's Curiosity, a \$2B, SUV-sized rover landed inside of Gale Crater on the Red Planet in 2012. Why do we go to Mars and what does it say about us a species? Join John C. Wells Planetarium Director Shanil Virani as he explores our fascination with

the Red Planet. *Big Meadows Amphitheater (mile 51), 45 minutes, A, AL [Rain location: Byrd Visitor Center]*

- 8:30 p.m. **Loft Mountain Evening Program: Stories in the Stars** – Join Ranger Mara for a story-filled program about the constellations you can see across our summer sky. Dress for cool mountain nights. *Loft Mountain Amphitheater (mile 79.5), 45 minutes, A, AL*
- 9:30 p.m. **Star Party** – Join us for laser-guided tours of the constellations, along with telescopes pointed at interesting celestial objects. *Meet inside Rapidan Fire Road gate (mile 51)*

Sunday, July 31

- 10:00 a.m. **Seeing Earth In A New Way** – Join Astronaut Tom Jones for gorgeous views of Earth, the Shenandoah, and the corresponding solar system landscapes from an astronaut's perspective! Presentation will be followed by a book signing, with his titles available for purchase, and light refreshments. *Skyland Conference Hall (mile 41.7), \$24/person (under 5 free) for presentation and refreshments. For more information and to register, call 877-847-1919.*
- 11:00 a.m. **Solar System Hike** – Join a Ranger and take a leisurely stroll to gain a greater appreciation for the enormous size of the universe. *Meet at the Rapidan Fire Road Gate (mile 51), 30 minutes, AL*
- 11:30 a.m. **The Wild Side of Shenandoah** – Celebrate one of Shenandoah's nighttime-loving animals at this short talk. *Byrd Visitor Center (mile 51), 20-30 minutes, A, AL*
- 12:00 p.m. **Solar Viewing** – Stop by anytime between 12:00 p.m. and 2:00 p.m. to safely view our closest star through a solar scope and learn about the center of our solar system. *Byrd Visitor Center (mile 51)*
- 1:00 p.m. **What Do We Lose When We Lose The Night?** – A dark, starry night sky, with the brilliant Milky Way blazing overhead, has been the source of inspiration for our science, our art, our philosophy and theology. It is also quickly disappearing. It is now estimated that 8 out of 10 Americans can no longer see the Milky Way, our home in the cosmos. Simulations of the rate at which we are lighting the night suggest that by 2025, true darkness will have disappeared from much of the USA. Is that our legacy? Join John C. Wells Planetarium Director Shanil Virani to learn more about light pollution, its many consequences, and its ready solutions. *Byrd Visitor Center (mile 51), 45 minutes, A, AL*
- 2:30 p.m. **Centennial Ranger's Choice: Dark Night Skies** – Each National Park Service site protects special natural and cultural resources. Learn about the importance of dark night skies in our national parks. *Byrd Visitor Center (mile 51), 20-30 minutes, A, AL*
- 3:00 p.m. **Big Meadows Junior Ranger Program** – Discover the night sky at this hands-on program for ages 7 to 12. Children must be accompanied by an adult. *Byrd Visitor Center (mile 51), 1.5 hrs, less than 1-mile walk, AL*
- 3:30 p.m. **Sky Walking: An Astronaut's Journey** – Join Astronaut Tom Jones for this presentation on his background and experiences as an astronaut! Presentation will be followed by a book signing, with his titles available for purchase, and light refreshments. *Skyland Conference Hall (mile 41.7), \$24/person (under 5 free) for presentation and refreshments. For more information and to register, call 877-847-1919.*
- 8:30 p.m. **Big Meadows Evening Program: The Wild Nightlife of Shenandoah National Park** – Dark night skies are important to animals, too! Join Ranger Meredith to learn about some of Shenandoah's nocturnal animals. Dress for cool mountain nights. *Big Meadows Amphitheater (mile 51), 45 minutes, A, AL*

9:00 p.m. **The Universe and You** – Join NASA JPL Solar System Ambassador Greg Redfern for this engaging presentation about outer space and the fascinating Universe in which you live, are made from, and are part of. *Skyland Amphitheater (mile 42), 1 hour, A, AL [Rain location: Skyland Conference Hall]*

10:00 p.m. **“Under the Stars at Shenandoah National Park”** – If the sky is clear after the “Universe and You” presentation, visitors will move outdoors to see the night sky while listening to sky lore and fascinating sky facts! *Skyland Amphitheater (mile 42)*

Please note:

- Outdoor activities may be cancelled in the case of inclement weather
- Jacket is recommended and flashlight is helpful for all evening activities. Please minimize flashlight use at night programs to preserve night vision. Flashlights and headlamps with red lights can help to preserve night vision. Red cellophane and rubber bands will be available for anyone wishing to cover their flashlights.
- All events are free, unless noted in the description.
- A = Accessible, AL = Assistive Listening Available

For more information on the weekend’s events:

For more information about the full weekend of events: www.nps.gov/shen/planyourvisit/night-sky-festival.htm.

For more information on 2016 Astronomy programming hosted by Delaware North at Shenandoah National Park, as well as Night Sky Festival events sponsored by Delaware North: www.goshenandoah.com/activities-events/astronomy.

Presenter Bios:

Thomas D. Jones, PhD, is a scientist, author, pilot, and veteran NASA astronaut. In more than eleven years with NASA, he flew on four space shuttle missions to Earth orbit. On his last flight, Dr. Jones led three spacewalks to install the centerpiece of the International Space Station, the American Destiny laboratory. He has spent fifty-three days working and living in space. Tom served on the NASA Advisory Council, and is a board member of the Association of Space Explorers and the Astronauts Memorial Foundation. As a senior research scientist at the Florida Institute for Human and Machine Cognition, he focuses on the future direction of human space exploration, uses of asteroid and space resources, and planetary defense. He appears frequently on TV and radio with expert commentary on science and space flight. More about Dr. Jones can be found at his website: www.AstronautTomJones.com.

Dr. Uwe Konopka received his PhD from the University of Bochum, Germany. He worked for the German Aerospace Center (DLR) and also for many years for the Max-Planck Institute for Extraterrestrial Physics performing an experiment on the International Space Station (ISS). Uwe Konopka came to the United States in 2012 to work as an associate professor in the Physics Department at Auburn University. He regularly teaches introductory physics and astronomy courses and continues his research on complex plasmas utilizing high magnetic fields and the unique experiment environment of the International Space Station.

Greg Redfern has been an adjunct professor/instructor of astronomy for five different colleges since 1984. As a NASA Jet Propulsion Laboratory (JPL) Solar System Ambassador since 2003, he has shared NASA's missions to the solar system with many audiences in person as well as on television and radio in the Washington D.C. media market. Greg's daily astronomy blog, "What's Up?: The Space Place.com" has had over 2.5 million views from around the world. As a writer Greg has authored numerous articles for "Sky and Telescope Magazine," "Meteorite Magazine," "Skywatch Magazine," and a number of newspapers including Gannet and USA Today. Greg has been observing and photographing the sky for over four decades and collecting meteorites for years. He's used telescopes of all kinds and visited observatories, NASA facilities, and geological sites. As a result, Greg has brought the wonder, beauty and excitement of our universe to audiences for decades in a one-on-one style that resonates with his passion and knowledge.

Shanil Virani is the Director of the state-of-the-art John C. Wells Planetarium and an Assistant Professor in the Department of Physics and Astronomy at James Madison University. He did his graduate work at Yale University where he studied supermassive black holes lurking at the centers of galaxies in the nearby and distant Universe. Prior to Yale, Shanil spent 5+ years at the Harvard-Smithsonian Center for Astrophysics as part of the Science Team of the Chandra X-ray Observatory, NASA's flagship space-based X-ray mission. In 2013, he was appointed a Solar System Ambassador by NASA's Jet Propulsion Laboratory (JPL). Solar System Ambassadors communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities. Shanil is a passionate educator and communicator of science.