

EXPANDING THE REACH OF SPACE AND PLANETARY SCIENCE EDUCATION DURING A GLOBAL PANDEMIC: THE FERNBANK SCIENCE CENTER AT-HOME PLANETARIUM EXPERIENCE. R. S. Harris, J. J. Dillon, and J. M. Lancaster, Department of Space Science, Fernbank Science Center, 156 Heaton Park Drive, Atlanta, Georgia 30307; scott.harris@fernbank.edu.

Introduction: Fernbank Science Center (FSC) was established in Atlanta, Georgia in 1967 as a unit of the DeKalb County School District (DCSD). In addition to providing expert outreach and onsite field trip opportunities across a variety of STEM disciplines for students both inside and beyond DCSD, FSC features the Apollo 6 Command Module, a large meteorite and impact materials collection, a publicly accessible 36" Cassegrain reflecting telescope, and a 71-foot 4K digital planetarium dome with seating capacity for an audience of at least 500. Between scheduled school classes and Thursday through Saturday public planetarium programming, FSC welcomes approximately 250,000 visitors a year. We provide a consistent quality resource for science education and engagement for the entire Greater Atlanta region. Consequently, the global pandemic response that began in March 2020, presented a unique and important challenge, particularly for the Jim Cherry Memorial Planetarium and our space and planetary science programming that anchors the Center's mission.

The Response: In April 2020, we established a live Friday night At-Home Planetarium Show that was broadcast from makeshift home studios via Facebook Live accessed through the normal FSC Facebook site @fernbankcenter. We provided star talks using Stellarium, and Evans & Sutherland/Spitz Inc. provided a library of watermarked flatscreen planetarium videos. Each show was archived in Facebook and linked to our primary website, www.fernbank.edu. The viewership for each "episode" would grow through the week. The major substantive difference between the real and virtual planetarium, apart from the unique domed room, was that we suddenly were offering new content every week. Typically, we change features every three to four months. The community seemed to enjoy this new model.

About a month into the programming, we had an opportunity to show Mars 1001 produced by Robin Sipp and narrated by PBS Science Correspondent Miles O'Brien. Before we knew it, we had both Robin and Miles participating as live guests. Robin joined us from inside a manned Mars rover on the production set of the movie in the Netherlands. The viewership skyrocketed to over 1600 people live. And we never looked back. We furnished an at-home studio with a high-speed computer, dedicated Zoom account, and

video production equipment and software. And we made a commitment to either producing original content or pairing special expert guests and panels to complement the watermarked shows and other public domain films. We also began to offer regular special coverage and local commentary of major solar system events, NASA missions, and breaking planetary science news. We partnered with NASA-funded scientists around the world and NASA Centers to continually provide fresh content.

The Results: As of January 2021, the FSC At-Home Planetarium Show has expanded to two live Friday evening broadcasts at 7:00 and 8:00 p.m. EST. On Saturday afternoons at 1:00 p.m. EST, we provide the PLANET-arium Show, a one-hour live tour through the solar system using the OpenSpace visualization platform. And at 2:00 p.m., we explore the constellations in the Virtual Sky. Recent highlights of our programming have been special presentations on the Christmas Star by Brother Guy Consolmagno S.J., The Planet Pluto with Kirby Runyon and Phil Metzger, and a live broadcast of the Great Conjunction of Jupiter and Saturn from the top of Stone Mountain, which reached close to 10,000 viewers. We also established a companion Facebook site, @FernbankEarthSpace where we air weekly 30 to 60-minute episodes featuring terrestrial geology, planetary geology, and virtual field trips to geologic sites around the world. More than 30 episodes are archived including a complete ten-part voyage through the solar system called Space Rocks!

Over nine months, we have produced more than 60 shows and estimate that we have had more than 150,000 viewers spanning at least six continents. In one sense we nearly are keeping pace with our pre-pandemic presence, but in other ways we are far exceeding our normal reach. The next challenge is to maintain the best of both the real and virtual worlds when the pandemic subsides.



Figure 1. Brother Guy Consolmagno S.J. (Director of the Vatican Observatory) joined us for a spectacular and inspirational discussion of the Great Conjunction, the Christmas star, and meteorites.