

# CaveSim programs supported by CCV, 2025

Prepared by Dave Jackson, NSS 60740 RL FE, revision 1, November 9, 2025

## Introduction

On behalf of CaveSim, I want to thank the Cave Conservancy of the Virginias (CCV) for very generously supporting CaveSim events in Virginia in September and October of 2025. With CCV support, we were able to educate many children and adults about cave conservation, science, and exploration. All of the people who participated responded very enthusiastically to the programs, and we made a point of sharing information about CCV and about local grottos and the National Speleological Society (NSS) with visitors who seemed interested in learning more about cave exploration. My goal is to create several generations of people who care about caves and cave conservation, and I am very grateful to CCV for helping to advance this goal. I hope that you feel that the support is worthwhile, and I am happy to answer any questions that come up from the CCV board.

Very Sincerely,



Dave Jackson

## CaveSim activities background information

During a typical CaveSim program, children and adults participate in a variety of activities, including the mobile cave, the vertical caving tower, the squeezebox, lessons about bat biology, lessons about cave chemistry, lessons about cave rescue with field phones, and other lessons and activities.

To explore the mobile cave, visitors put on CaveSim helmets with location tracking technology and headlamps on the helmets. As visitors crawl and climb through the cave, they receive feedback from the system about how carefully they are exploring. When a visitor touches a speleothem, gets too close to a cave painting or artifact, or disturbs the cave biota, they hear a beeping sound, see red lights light up around the object, and sometimes hear a recorded message about conservation explaining why they should not touch the objects. When visitors pick up a discarded water bottle in the cave, they receive positive feedback for picking up trash in the cave. Each action (either good or bad) impacts the visitor's careful-caving score as recorded by the computer system. When visitors exit

the cave, they review their score on the computer screen and can then explore again to try to get a better score. Visitors can also choose a different route through the mobile cave, as there are five places where the passage branches, and the passage also includes three physical levels.

On the vertical caving tower, visitors learn about how haul systems are used in vertical cave rescue. Participants put on a simple seat harness and helmet, and are lifted up the 12-foot-tall tower by their friends with help and supervision of CaveSim staff and volunteers. This experience provides children with a STEM lesson in which they learn about the physics of pulleys, and staff teach concepts like mechanical advantage, conservation of work, forces, and friction. Participants also learn about safety around vertical cave entrances, safe handling of ropes and pulleys, and concepts about vertical cave rescue.

The CaveSim squeezebox allows children to learn about measurement and basic math, and gives them the opportunity to challenge themselves to see how small a space they can fit through.

## Grant background information

In July of 2025, discussions began between City of Roanoke staff and CaveSim staff about bringing CaveSim back to Roanoke for the City's GO Fest. Ellie Rigby reported that Roanoke Outside had applied to CCV for a grant to bring CaveSim back because CaveSim was so popular at GO Fest 2024. By August, Ellie reported to Dave that Roanoke Outside had been granted the funds needed to have CaveSim at GO Fest for two days of free-to-the-public educational programming. Because CaveSim is located in Colorado, a significant portion of the CCV funding was needed for transporting the mobile cave across the country. In the interest of using the funds as efficiently as possible, CCV asked if CaveSim would be conducting other educational programs (in addition to GO Fest), so we made a point of scheduling other events in Virginia (and in other places around the country) before and after GO Fest. Subsequent sections of this report detail the educational work that we did before, during, and after GO Fest.

## Pre-festival events made possibly by CCV funding

On September 9<sup>th</sup>, two CaveSim staff (Dave and Bruce) set out from Colorado Springs with CaveSim Trailer3 (the latest mobile cave system). After driving for several days, we conducted an educational program on September 12<sup>th</sup> at East Lake Elementary School in McDonough, Georgia with help from local caver Marie Haywood. Gifted and

Talented students in 1<sup>st</sup> through 5<sup>th</sup> grade participated, and we worked with 175 students during the day.

We then conducted two more days of education at Tellus Science Museum in Cartersville, Georgia on September 13<sup>th</sup> and 14<sup>th</sup> supported with a generous donation from Rick and Fran Buice. Museum visitors were not required to pay admission for this program, and we had several hundred participants each day, with 1177 trips taken through the cave in a two-day period. One visitor wrote in an online review that CaveSim at Tellus Science Museum was a, “Very cool experience, [with a] helpful guide and kids and I had a blast!”

We were joined on September 18<sup>th</sup> by another CaveSim staffer for a program at East Forsyth High School in Gainesville, Georgia. This was our second year at this high school, and we worked with a variety of students, including students in science classes, special education classes, and career tracks (including firefighter training courses). We educated about 150 students, and almost all were very engaged in the program, which included the mobile cave, vertical caving tower, cave rescue lessons, and a hands-on lesson about how sinkholes form. Teacher Bethany Demarest wrote that, “Our students had a wonderful time!”

On the evening of September 18<sup>th</sup> we drove to Chattanooga for educational programs at Ruby Falls on September 19<sup>th</sup> and 20<sup>th</sup>. This two-day event was a free program during a full-week homeschool event. During the first day of the program, the Southeastern Cave Conservancy (SCCi) set up a table next to CaveSim and provided additional lessons about karst hydrogeology. During this two-day event, visitors took 423 trips through CaveSim.

On Sunday, September 21<sup>st</sup>, most of the deployed CaveSim staff flew home to Colorado, but Dave drove the mobile cave to Luray Caverns in Virginia, where he was joined by a CaveSim volunteer (Geoff). Dave and Geoff ran CaveSim for five days at Luray, and were open from about 9AM – 5PM each day. The program was free for visitors, and coincided with the National Caves Association (NCA) Convention, a portion of which was held at Luray Caverns. Luray visitors loved the experience, and quite a few people left five-star Google reviews for CaveSim, including one person who said, “Finding this as we went to luray caverns was such a fun surprise! It made all the difference in having our daughter engaged and interested in the cave when we took the tour. We can't wait to do it again!” Visitors took 1,346 trips through the mobile cave during the five days at Luray Caverns.

On September 26<sup>th</sup>, Dave drove CaveSim to Roanoke where he staged the truck and trailer at a secure city maintenance lot with help from Ellie Rigby and Dave and Mary Sue

Socky. This allowed Dave to fly back to Colorado, and then drive to Nevada for the National Cave and Karst Management Symposium where he was presenting.

All told, CaveSim conducted 11 days of events prior to GO Fest. None of these events would have been possible without support from CCV because CCV made it possible for us to transport the mobile cave across the country. Each of the organizations that we worked with during the 11 days paid for the program cost and for the incremental mileage to their location. If these organization had needed to pay the entire cost of transporting the mobile cave from Colorado, most of them would likely not have been able to afford to do so. These pre-festival events reached well over 1000 people, and we are very grateful to CCV for making this education possible.

## GO Fest events made possibly by CCV funding

In the late summer and early fall, Mary Sue Socky worked very hard to organize shifts of volunteers to assist with the CaveSim educational programs at GO Fest in Roanoke. Dave flew into Roanoke on October 17<sup>th</sup>, and was rejoined by CaveSim volunteer Geoff.

CaveSim opened to GO Fest attendees at 9AM on October 18<sup>th</sup>, and remained open until 8PM. Mary Sue was very well organized, and we had sufficient volunteers to help with a variety of stations, including the mobile cave, vertical caving tower, squeezebox, and an information table where volunteers shared information about CCV, the NSS, local grottos, and show caves. We had a long line of visitors during almost the entire day, and we used this line as an opportunity to educate kids and their parents about cave conservation and science. During this first day of GO Fest, kids and adults took 536 trips through the mobile cave.



*A line of visitors waits to explore CaveSim on the first day of GoFest. We were set up next to climbing walls, but CaveSim was much more popular. Photo by Mary Sue Socky.*



*Above, information about caving in Virginia (and about CCV and the NSS) at a booth put together by BRG members. Photo by Dave Socky.*



*Above, visitors wait to explore CaveSim. The family in the foreground stated that they came back to GoFest specifically because of CaveSim (they had explored last year with us as well). Photo by Dave Socky.*

The festival hours were shorter on the second day (10AM – 5PM), but CaveSim remained busy during the entire time. The public had great things to say about CaveSim at GO Fest, and some quotes from Google reviews are shown below.

- *“The CaveSim experience is not only a fantastic experience and adventure for everyone, but also an incredible educational opportunity for all. As a physical education teacher I think this is a brilliant way to explore movement and inspire more people to enter the world of nature and the cave experience.”* Christopher Luby
- *“Great time at Go Fest. My family had a blast learning about caving and mechanical advantages with the ropes.”* James Schindler
- *“Super fun and educational experience for adults and kids! One of our favorite vendors at GoFest this year.”* Paul Workman
- *“This as close to caving as you can get without actually going in a cave. The kids loved it.”* Eric Garland
- *“HGHLY [sic] recommend. We loved at GO Fest.”* Jennifer Como

On the second day of GO Fest, visitors took 506 trips through CaveSim, which means that during the two days of programming at GO Fest visitors took 1042 trips through the mobile cave. Several families told us that CaveSim was the only reason that they came back to GO Fest. While it is difficult to estimate exactly how many people participated, it is safe to say that we educated over 1000 people about cave conservation, science, and exploration during the GO Fest event.



*Above and below, visitors entering and exiting the mobile cave during GO Fest with a CCV sponsor sign at right. Above photo by Dave Jackson, below photo by Dave Socky.*





*Above, children explore inside the mobile cave. Photos by Dave Jackson.*



*Above, a few of the people who helped run CaveSim during GO Fest, including, from left to right, Dave Jackson, Dave Socky, Mary Sue Socky, Nick Schmalenberger, Geoff Lawrence, and Bambi Marshall. Photo by City of Roanoke staff.*

## Post-festival events made possibly by CCV funding

Right after GO Fest ended, the mobile CaveSim trailer drove to Richmond. On Monday, October 20<sup>th</sup>, CaveSim was at Pocahontas State Park for another event, which was sponsored by the Richmond Area Speleological Society (RASS). The program ran from 9:30AM to 5:30PM, and we were busy from beginning to end. The program was entirely free for the public, and park admission fees were waived for this event. Monday was a school holiday for some schools (in celebration of Diwali), but other schools were still in session. As a result, we had visitors from many demographics join us for the program, including homeschool families, public school families, and a school group. The school group was from Central Montessori School in Richmond, and included roughly 30-35 children, teachers, and chaperones. This school group included both elementary and middle school children, and they participated with us multiple times throughout the day. The families that participated included children from very young ages up to young adults, and we were able to engage many of the parents in the program by encouraging them to explore the mobile cave.

To facilitate the program, CaveSim had two staff members (Dave and Geoff) at the event, and we also had help from Wil Orndorff and Penelope Vorster of DCR. Wil and Penelope drove about three hours from (and to) Blacksburg to assist with the program. Wil and Penelope would not normally have done this, but one of the goals of the program was to allow DCR staff to see the benefits of CaveSim as an educational tool. Wil believes that it would be beneficial for DCR to procure a CaveSim system so that DCR can use it around the commonwealth for education purposes. We had several regional- and state-level DCR staff visit the program at Pocahontas, including Katie Shepard, Chief of Education and Interpretation. Wil had also invited Frank Stovall, Deputy Director of Operations for DCR, but Frank was busy at the grand opening of Hayfields State Park, and Wil kept Frank updated via email. We also met Joel Webber with Friends of Pocahontas State Park and he shared helpful insights about how the state-level DCR friends group could be helpful in procuring funding for future collaboration between DCR and CaveSim.

During the Monday event, visitors took 748 trips through the mobile cave, which indicates a very strong turnout. Visitors waited patiently in line to explore the cave, sometimes for as much as 20 minutes, and we educated the visitors about cave conservation and science while they waited.

We also had a line of visitors waiting to try the vertical caving tower, and those visitors waited 20-25 minutes at some times during the day, which also indicates a very strong event turnout. Visitors waiting near the front of the line helped with a simulated vertical cave rescue by lifting one of the participants up the 12-foot-tall SRT tower.

At certain times during the day, staff provided group lessons on a variety of topics. One such lesson was about bats, and visitors learned about bat skeletal morphology with a real bat skeleton, and about the ways in which bats help humans. Another lesson was about the electromagnetics of cave rescue phones. Yet another lesson was about cave-related chemistry, and participants learned about the chemistry that explains why they should not touch speleothems.

Commenting on the event at Pocahontas State Park, Wil Orndorff reported to other DCR staff that, "It was a banner day."



*Above, Wil Orndorff (left) helps a participant with a CaveSim helmet while other participants prepare to explore the mobile cave. Photo by Dave Jackson.*



*Above, participants enter the mobile cave at Pocahontas State Park. Photo by Dave Jackson.*

On Tuesday, October 21<sup>st</sup>, CaveSim set up at the Children’s Museum of Roanoke. Like the Monday program, this event was sponsored by RASS, and ran from 9:30AM – 5:00PM. The program was free and open to the public, and museum admission was not required. The event was very similar to the events in Roanoke and at Pocahontas State Park, albeit with a smaller turnout (and 313 trips taken through the cave). One of the benefits of this smaller turnout is that each visitor was able to participate in more in-depth lessons. For instance, CaveSim staff provided more detailed physics lessons on the vertical caving tower, including lessons in which participants had the opportunity to compare a 1:1 and a 5:1 haul system.

Participants varied widely in age and ability level. For example, several adult participants with intellectual and developmental disabilities joined us for the program and explored the squeezebox and the mobile cave multiple times. We also had several groups of after-school camp participants, as well as many families. Some families reported that they had driven an hour to participate in the program. One mother wrote the following Google review: “Dave and the entire CaveSim team is awesome! We got to see them twice in two days and we wish they had a Virginia location to be around 10x more! This is SUCH a great experience for ALL kids”

Another parent wrote that, “We had the privilege of experiencing Cavesim at the Childrens Museum this weekend. It was incredible! At first the kids were nervous to go in and then they absolutely loved it! It was so neat to see the change in their confidence levels as they did something new and realized how cool it was. We stayed for two hours, they did not want to leave! The whole setup was so detailed and felt like you were really in a cave! It was amazing!”

After the event at Children’s Museum of Richmond, CaveSim drove to Huntsville, Alabama where Dave and Geoff worked with numerous NSS volunteers to put on free public events at the NSS headquarters on Thursday, October 23<sup>rd</sup> and an event at University of Alabama, Huntsville on Saturday, October 25<sup>th</sup>. At the NSS headquarters, we had the opportunity to work with several van-loads of kids from the Boys and Girls Club, and 118 trips were taken through CaveSim. The Saturday event was very well attended, with 422 trips taken through the mobile cave.

Dave and Geoff then drove to Austin, Texas for elementary school programs on Monday and Tuesday, October 27<sup>th</sup> and 28<sup>th</sup>. Geoff then returned to New York, and Dave continued to Oklahoma City for an elementary school program on October 29<sup>th</sup> with help

from several local volunteers. To finish off the trip, Dave returned to Colorado Springs for a program on October 31<sup>st</sup> at an alternative high school for students who have had difficulty in regular high school, and who are taking career and technical education courses, including Wilderness Medicine.

## Summary of program accomplishments

In the span of approximately 7 weeks, CaveSim conducted 21 days of educational programs in seven states. 20 of these days were outside of Colorado, and were made possible because CCV provided funding to bring CaveSim to Roanoke for GO Fest. A multitude of organizations paid for the non-GO-Fest programs and for incremental mileage, including Luray Caverns, RASS, the NSS, the Alabama Science Festival, Ruby Falls, generous cavers in Georgia, the City of Austin, and the five schools that we worked with. The mileage costs for these organizations would have been much higher without the funding that CCV provided to transport CaveSim between Colorado and Roanoke. In other words, we lived up to our promise to make good use of the trip to Roanoke by educating as many people as we could along the way. It is astounding to realize that 6,931 trips were taken through the mobile cave during this 7-week program series. It is difficult to calculate exactly how many people learned about cave conservation, science, and exploration from the programs, but a conservative estimate is that over 4200 people learned from our outreach.

It is also worth noting that several dozen people deserve credit for organizing events, volunteering at events, allowing CaveSim staff and volunteers to stay in their homes, picking up and dropping us off at the airport, and helping to publicize the events.

NSS member Maggie Cole volunteered at the events in Huntsville, and she said that, "I have found most of the people I introduce the caves to, are not interested in going caving, out of fear, but they learn new things about the caves in our area every time. I think from our encounters, people better appreciate the importance and value of the subterranean world we love so much. Many have said something along the lines of, "I don't want to go, but I respect what you do and find it fascinating." I find experiences like this to be encouraging, that maybe we are teaching our peers, and future generations, to love and protect the caves far better than if we were to pretend they didn't exist. Thank you so much for everything you are doing to foster love and care for the caves we already love so much."

By supporting CaveSim educational programs, CCV is helping to create generations of people who understand, care about, and want to protect caves, even if those same people never choose to enter a wild cave.

## Future work

Several DCR staff have suggested that CaveSim be brought back to Richmond during the upcoming legislative session so that DCR can build a case with state legislators for DCR to acquire a CaveSim system for use around Virginia. If this occurs, it will most likely happen in the first quarter of 2026, and we will keep CCV updated as plans develop.

## Questions, comments, and feedback

If CCV board members have any questions, comments, or feedback, please feel free to contact CaveSim by email at [jacksondmit@cavesim.com](mailto:jacksondmit@cavesim.com), or by phone at 914-330-7824. We are very grateful for the support provided by CCV and we hope that you feel that this type of program is worthwhile to support again in the future.



*Driving CaveSim is hard work. Above, Dave Jackson turns the trailer around in a driveway near Mary Sue and Dave Socky's house before heading to Huntsville. Photo by Mary Sue Socky.*