



Dr. Jeff Goldstein

Center Director

Carl Sagan Center for Earth and Space Science Education

Research Specialty: Planetary atmospheric dynamics

Comfortable with the following age ranges: all

Comfortable with the following audience sizes: all

Dr. Jeff Goldstein is the Center Director for the Carl Sagan Center for Earth and Space Science Education. He studies weather on other planets. He and his colleagues use a powerful telescope on top of a dormant volcano called Mauna Kea on the Big Island of Hawai'i. It's the highest point on Earth in the Pacific Ocean. The machine he connects to the telescope—which is called an Infrared Superheterodyne Spectrometer (ask him about it!)—has measured winds on Venus, on Mars, and in the atmosphere of Saturn's largest moon Titan. On Venus, which is sometimes 160 million miles away, the machine can measure gentle breezes of two miles an hour!

Presentation Overviews and AV Requirements:

Classroom Visit Presentation

How Big is Big?

Grades: K-12

It's a big, often intimidating universe out there. How do we even begin to fathom objects and distances that dwarf anything we've ever experienced? Earth's place in space *is* knowable. The secret is placing the universe in a context that is *familiar*. Take a magical journey from spaceship Earth to points unknown.

AV Requirements: traveling 35 mm slide projector, extension cord, large projection screen, dark room, CD player, standard size globe (approximately 13" in diameter), basketball, and baseball

Family Science Night presentation

A Voyage that will Forever Change Your Perspective of Home

Sometimes a story is so moving, so powerful, it is capable of changing the way we view the world and ourselves. In October 2001 *Voyage: a Journey Through Our Solar System* opened on the National Mall in Washington, DC. Created by Challenger Center for Space Science Education, the Smithsonian Institution, and NASA, *Voyage* is a permanent one to 10-billion scale model of the solar system that provides visitors a dramatic understanding of Earth's place in space, and celebrates our ability to reach beyond our tiny world and uncover the breadth and majesty of the universe. Join Dr. Jeff Goldstein, *Voyage* project director, for a memorable *Voyage* that will forever change your perspective of home.

AV Requirements: LCD projector, large screen, CD player, lavalier microphone, extension cord, standard size globe, baseball

Formal Bio
Dr. Jeff Goldstein

Dr. Jeff Goldstein is Center Director for the Carl Sagan Center for Earth and Space Science Education, established in June 2005 under the auspices of the Universities Space Research Association (USRA). The mission of the Sagan Center is to use explorations of Earth and space, and new flight technologies in aeronautics and astronautics, to inspire current and future generations. The vision is to continue America's legacy as a leader on these science and technology frontiers well into the 21st century, enabling human exploration for generations to come.

As Center Director, Dr. Goldstein is responsible for the creation and delivery of new national educational initiatives that are meant to support and enhance education in science, technology, engineering, and mathematics (STEM) using the Earth and space sciences, and human space flight, as the interdisciplinary vehicles. The breadth of programming, reflecting the Sagan Center's strategic vision, allows for multiple pathways of delivery within a community, and includes programming for schools and the public, professional development for grade preK-13 educators, development of exhibitions, and distance learning initiatives. Programs are meant to provide a window on the nature of science and the lives of modern-day explorers, with special emphasis on not just *what* is known about the Universe but *how* it has come to be known. This approach serves to reveal the very personal means by which researchers ask questions of the world, empower themselves to create a pathway to an answer, and hopefully bear witness to something wholly new to the human race. Developing an understanding of this process of scientific inquiry in audiences is the center-piece of all programming, requiring teams of educators and researchers on staff to effectively and seamlessly integrate process, content, and pedagogy. Fundamentally, the embraced educational paradigm is *inspire ... then educate*.

Dr. Goldstein also ensures that the Sagan Center maintains an active space science research group, and that staff scientists are engaged in all of the organization's education and public outreach programs. Researchers split their time between research and *national* public education. This ensures that Sagan Center programs include a strong astronomy and space science component, are accurate in both scientific content and context, interface the Sagan Center with the national and international space science communities, and reflect the research experience—the human side of exploration.

Prior to joining USRA, Dr. Goldstein was Executive Vice President for Space Science Education and Research at Challenger Center for Space Science Education. He joined Challenger Center in 1996 after eight years in the Laboratory for Astrophysics at the Smithsonian's National Air and Space Museum. He was Acting Chairman of the Laboratory at the time of his separation from the Museum.

Dr. Goldstein is Principal Investigator and Program Director on numerous national educational programs including major museum and science center exhibitions, large-scale educator training initiatives, programs for family learning, and classroom programs for tens of thousands of grade K-12 students each year. Dr. Goldstein oversaw the development of *Voyage*, a permanent outdoor scale model of the Solar System that opened on the National Mall in Washington, DC, on October 17, 2001. The distance from the Sun to Pluto within this one to ten-billion scale model spans 600 meters (2,000 feet) between the National Air and Space Museum and the Smithsonian Castle. A joint project of Challenger Center for Space Science Education, the Smithsonian Institution, and NASA, the *Voyage* exhibition was designed so that it can be replicated and installed at sites nationally and internationally, making it potentially the largest space science exhibition ever undertaken.

Dr. Goldstein oversees *Journey through the Universe*, a national outreach effort meant to facilitate sustainable community-wide science education in under-served communities across America. Funded by grants from NASA Headquarters, *Journey through the Universe* is growing a network of

24 communities, which will reflect annual programming for approximately 100,000 students. Resources provided to each community include a week-long event conducted by a national team of scientists, engineers, and educators, which includes training for 100-200 educators, classroom visits to 4,000-12,000 K-12 students, and 2-3 family programs, each for 200-1,000 parents and their children. Dr. Goldstein also oversees the Sagan Center's education activities in support of the MESSENGER spacecraft mission to Mercury, which includes training of 27,000 teachers in solar system science over the mission lifetime.

Dr. Goldstein has extensive (K-13) science education experience at the local, state and national level, with an educational research interest in assessment of public programs and exhibitions. Dr. Goldstein has given over 150 educator workshops, and given over 700 presentations at elementary through college levels. He is also routinely invited to give keynote and featured presentations at educator conferences across the nation. He is the recipient of numerous awards for education and public outreach, most recently the Astronomical Society of the Pacific's 2005 Klumpke-Roberts Award for Outstanding Contributions to the Public Understanding and Appreciation of Astronomy.

Dr. Goldstein's planetary science research includes the development of new techniques for the measurement of wind fields in the atmospheres of other planets. His research has produced the first direct measurement of the global winds above the clouds on Venus, and the first measurement of the global winds on Mars. These comparative planetary studies lead to a better understanding of the physics and chemistry that govern atmospheric phenomena in general, and provide insightful clues to atmospheric phenomena here on Earth.