

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Upper Stages, Space Transfer, Entry and Landing Systems (3)

Author: Dr. Luciano Saccani
Sierra Space, United States, Luciano.Saccani@SNCorp.com

Mr. John Roth
Sierra Space, United States, john.roth@sncorp.com
Dr. Olson John
Sierra Space, United States, john.olson@sncorp.com

DREAM CHASER GLOBAL

Abstract

For several countries, institutions, and agencies, Dream Chaser® Global Program can be the solution to their “Quest for Space”: the benefits and pride of a spaceflight program without the time and financial burden of developing the necessary capabilities and infrastructure. Designed as a flexible Space Utility Vehicle, the Dream Chaser® spacecraft is a reusable, low-cost lifting body orbital spacecraft. SNC has considerably invested into the system’s design and development of the vehicle, and retains ownership of the Dream Chaser and the associated intellectual property. This allows SNC to partner, collaborate, and offer broad access to use the vehicle. The Dream Chaser vehicle operates like the Space Shuttle: vertical launch and horizontal landing. The Dream Chaser spacecraft can affordably reach low-Earth orbit (LEO) destinations. Its lifting-body design allows a gentle reentry from orbital missions at 1.5g’s or less. Coupled with a large crossrange, gentle runway landing, and the use of non-toxic consumables, including propellants, the Dream Chaser is ideal for responsive return and near-immediate access to cargo post-landing almost anywhere in the world – features important for the return of sensitive payloads and science experiments. SNC offers clients multiple Dream Chaser vehicle configuration and service options for customizing a spaceflight program. Dream Chaser Global clients can chose from a single fully dedicated mission to a suite of dedicated missions to be carried out over an extended period of time. Clients could even purchase a portion of a mission on an already existing and available Dream Chaser flight. The vehicle, coupled with an appropriate module or kit, can serve as an orbiting laboratory for scientific experimentation with robotic telepresence. Mission profiles include: delivery and return of cargo to/from orbiting facilities; servicing and debris removal; independent orbital science laboratory operations; microgravity materials research and manufacturing site; platform for observation and remote sensing missions. Technology missions allow scientists and developers to test space hardware and increase technology readiness levels (TRL) for new technologies. Free-flight science missions offer a microgravity environment with extremely few disturbances. Up to 35 standard or customized locker boxes are available in the pressurized volume. Flexibility in launch and landing sites maximizes access to payloads before and after flight. SNC has already signed MOU, TAAs, and other forms of cooperation agreements with several International Space Agencies and Industries.