

SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Architectures (4)

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DREAM CHASER FOR EUROPEAN UTILIZATION (DC4EU)

Abstract

The Dream Chaser® spacecraft, designed and built by Sierra Nevada Corporation (SNC)®, is a commercial, reusable, multi-mission space utility vehicle (SUV) capable of uncrewed or crewed missions to low Earth orbit and gentle re-entry and runway landings at locations around the world. SNC, the European Space Agency (ESA), and several ESA Member States and their industrial companies, are collaborating on a joint activity known as the Dream Chaser for European Utilization (DC4EU). As part of the broader Dream Chaser Global initiative to open space to a much larger global market and client base, DC4EU represents an evolution of European initiatives.

NASA selected the Dream Chaser Cargo System, the uncrewed mission variant of the crewed Dream Chaser Space System, to transport pressurized and unpressurized cargo to and from the International Space Station (ISS). While initially focused on delivering unmatched capabilities to enhance U.S. and international partner utilization of and return on investment from the ISS, the Dream Chaser SUV is also an affordable and highly capable system for wide spectrum of additional LEO missions that will open tremendous new opportunities for Europe.

The DC4EU partnership concept initially started with a joint DLR and German industry (OHB-lead) study to assess the potential of the crewed Dream Chaser Space System to execute on-orbit servicing and active debris removal (ADR) missions. The positive results of this initial effort highlighted the mission flexibility of this system and laid the foundation for a broader vision to collaboratively leverage the Dream Chaser vehicle to develop uncrewed autonomous European LEO service missions using European systems, infrastructure, launchers, control centers, and landing sites. The primary objective of the current DC4EU partnership initiative is to prepare affordable, reliable, and flexible space transportation services, as well as, test, research and development, manufacturing, and on-orbit servicing capabilities for autonomous European access-to-LEO. DC4EU can deliver best value for Europe stakeholders through a pioneering pursuit of broader markets and customers.

The benefits for ESA and Europe result from leveraged development of a low-risk, near-term opportunity to establish a European RD and operations platform in space that strengthens European competitiveness by enhancing science and technology research; sustains the LEO environment, fosters the commercial development of space; demonstrates capabilities to enable future crewed and robotic exploration missions; brings space directly to the European people with a visible, valuable, and compelling investment return; and inspires future generations, asserts global leadership, and instills national pride and excitement.