

**Space Exploration Systems**



**UN/UAE High Level Forum**

“Space as a driver for socio-economic sustainable development”

November 22<sup>nd</sup>, 2016

**Dream Chaser Global: How to allow Countries to quick start  
a domestic Space Program**

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- Capacity Building
- Gateway to Outer Space
- Global Facilitator
- Bringing the Benefits of Outer Space to Human Kind
- Foster International Cooperation
- Sustainable Development Goals

How can Dream Chaser and Sierra Nevada Corporation contribute to achieve them?

**THE GLOBAL GOALS**  
For Sustainable Development



# SNC Dream Chaser Global Opening Space to All Countries

Not all Countries and Institutions can afford the time and financial burdens of starting their own Space Program.

For this reason Sierra Nevada Corporation has developed the Dream Chaser Global Initiative

It offers to users a safe and affordable access to space using the *Dream Chaser*® Space Utility Vehicle (SUV) to enable a variety of missions.

Dream Chaser is the only runway-landing capable Space Vehicle actively in development in the world

The *Dream Chaser*® vehicle and the supporting services are available for customized missions to low Earth orbit, including the selection of desired landing site.

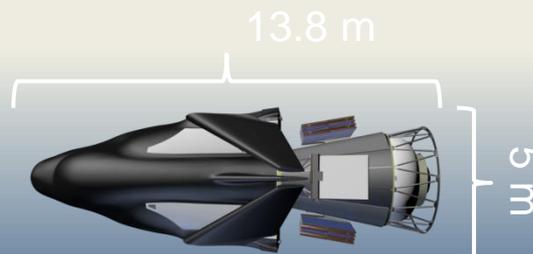
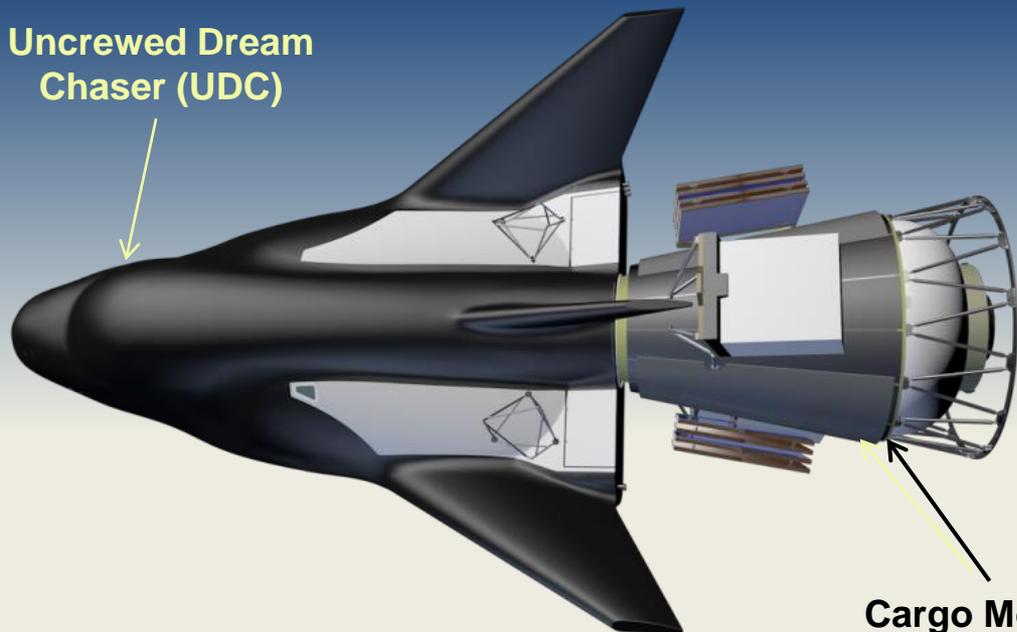


# The Dream Chaser reusable vehicle. Un-manned Version

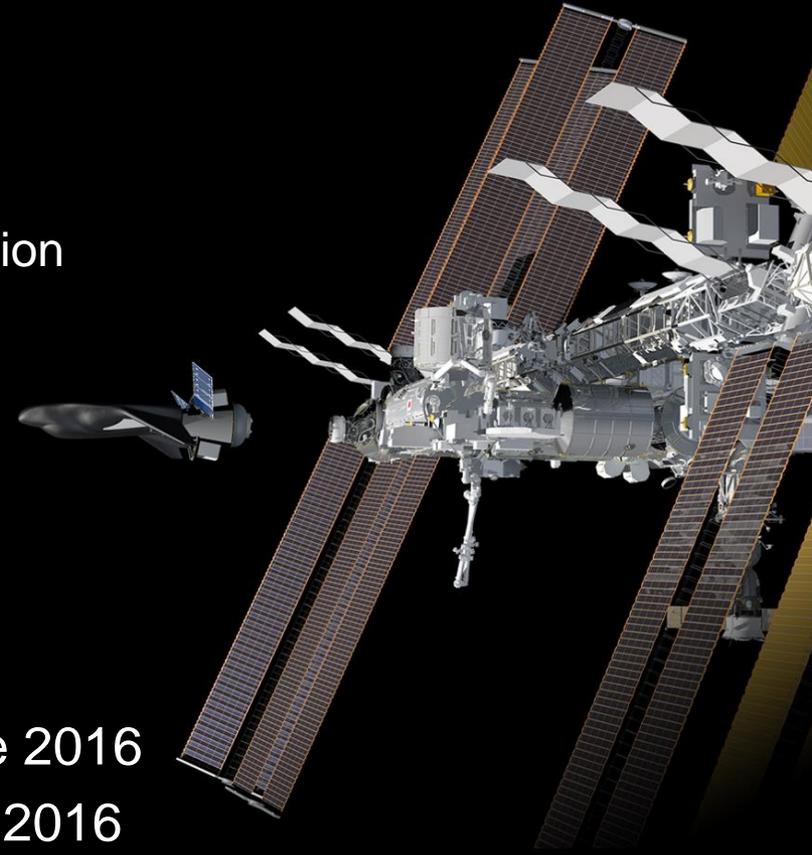
Launch System

Uncrewed Dream Chaser (UDC)

Cargo Module (CM)



- **NASA Program for Cargo missions**
  - **Contract Award:** Jan 2016
  - **Minimum Award:** 6 Missions/company
  - **Total Contract Value:** Not to exceed \$14Billion
  - **CRS Contract Period:** 2016-2024
  - **Flights Expected** 2019-2024
- **SNC is executing task orders now**
  - ◆ **Completed Payment Milestones:**
    - Integration Review 1: Complete June 2016
    - Integration Review 2: Complete July 2016
    - Integration Review 3: Planned February 2017



# NASA CRS2 Program

*Cargo Up to ISS, Disposal, and Rapid Cargo/Science Return*

**Cargo Delivery**

**Mission Flexibility:** 10+ day on-orbit loiter for pre-docking checks and phasing

**Mission Capability:** Propulsion used for ISS dock/undock, deorbit, entry and ISS reboost

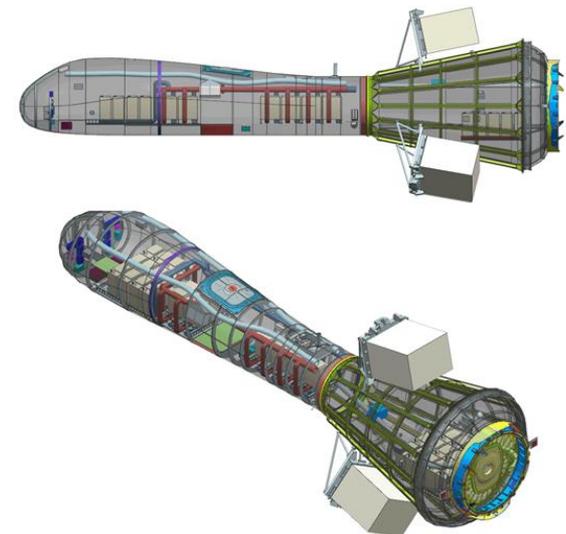
**Disposal**

**Rapid Cargo Access**

**Launch**



- **CRS2 is a series of Cargo Resupply Missions for NASA**
- **SNC wants to extend the benefits of using the Dream Chaser beyond CRS2 and to additional users**
- **Since it is a reusable and runway landing lifting body, Dream Chaser offers extremely interesting performances and can be used for different kind of missions and users. Like:**
  - ◆ Biotech and Pharmaceuticals
  - ◆ Biology and Life Sciences
  - ◆ Material and Fluid Science
  - ◆ Technology Demonstration/Validation
  - ◆ Manufacturing
  - ◆ Remote Sensing
  - ◆ Deployment/Servicing of Space Assets
  - ◆ Human Space Flight



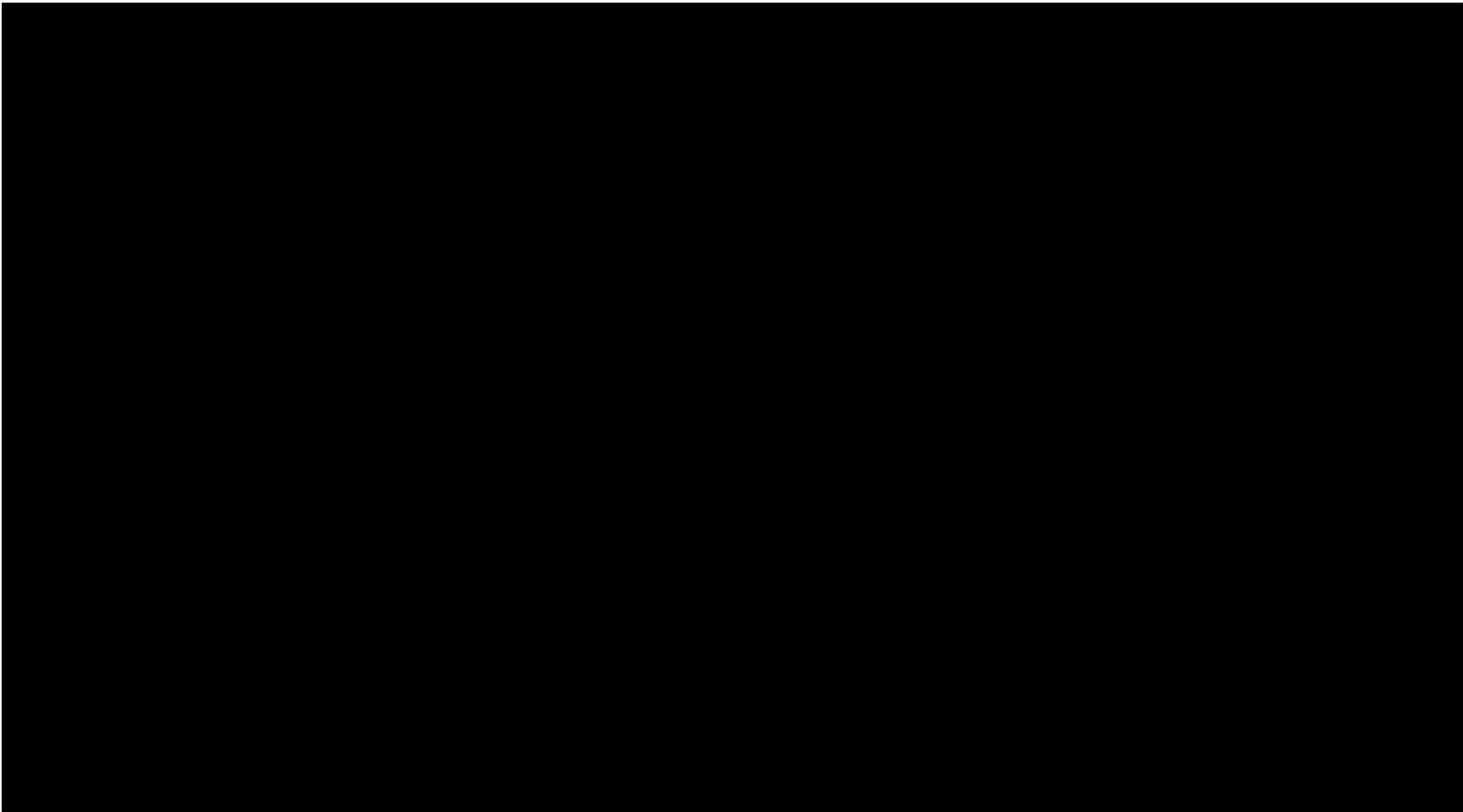


***Uncrewed Dream Chaser***

**Built on Dream Chaser Cargo System to  
Extend Mission Capabilities  
for Customer-Driven  
Version and Variants**



***Crewed Dream Chaser***





**Remote Sensing & Technology Test**

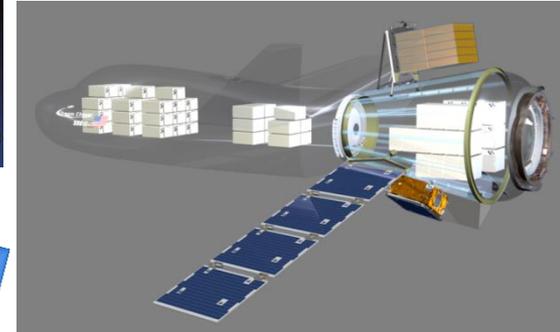


**Biotech and Pharmaceuticals**

**Biology and Life Science**

**Material and Fluid Science**

**Technology Demonstration**



**Free-Flying Science**

**On-Orbit Robotic Deployment, Servicing, Assembly & Repair**



**Worldwide Runway Landing**



***A World of Opportunities***

- Frequent Flight and Re-Flight Opportunities
- Expedited and Cooperative Payload Integration
- Flexible Operating Requirements and Environments

# Dream Chaser Global as Gateway to Outer Space for Everybody

The Initiative benefits the user's local technology infrastructure and industrial base, such as:

- Government research and development laboratories
- Aerospace industry
- Universities

Users will be able to:

- Design customized missions to LEO
- Return payloads and experiments from space
- Land in their own Country, thereby enabling
  - broad public participation
  - visible return on investment for their Space Program

Several arrangements of crewed and uncrewed missions for government, commercial, and international users:

- Suite of multiple dedicated *Dream Chaser*® missions
- Single dedicated *Dream Chaser*® mission
- Fractional use of the vehicle in cooperation with regional partners
- Individual seat or payload/experiment bay



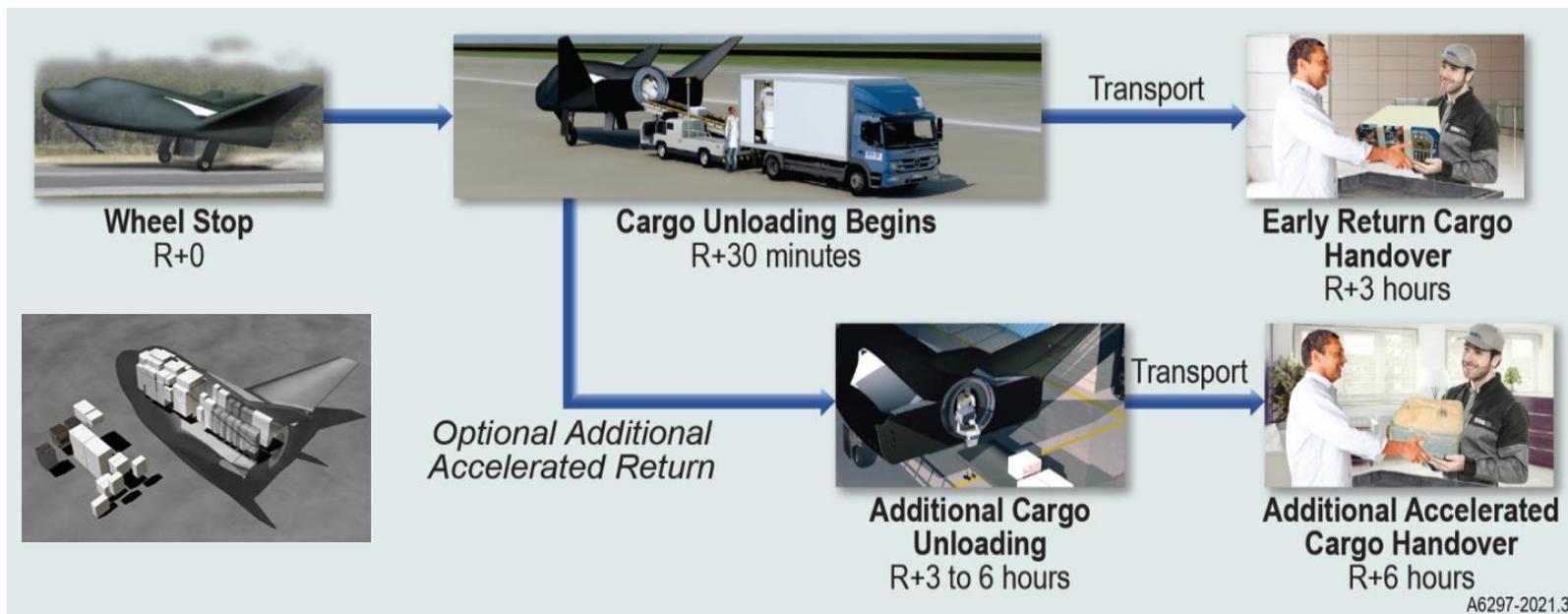
**Dream Chaser Global Users design their own turnkey mission:**

- **Version**
  - ◆ Crew
  - ◆ Uncrewed
- **Mission Specific Variant**
  - ◆ Science
  - ◆ Technology Validation
  - ◆ Servicing
  - ◆ Remote Sensing
  - ◆ ...
- **Mission Extent**
  - ◆ Single Seat and/or Payload
  - ◆ Multiple Seats and/or Payloads
  - ◆ Whole Dream Chaser Mission(s)
- **Launcher and launch site**
- **Ground Control**
- **Orbit Altitude/Inclination**
- **Landing Site**



# Unique Features that Provide Operational & Research Benefits

- Gentle 1.5g re-entry and runway landing protects sensitive payloads
- Immediate post-landing access to critical science (< 3 hour handover)
- Non-toxic/non-hypergolic fluids support late cargo loading and accelerated access to science post-launch, immediately post-landing
- Can provide all cargo in 24 hours for rapid and responsive utilization



User  
Logo  
Here



## Opening Space to Countries with no National Space Program

- Program customized to meet user nation's priorities
- Eliminates time and financial burden to develop infrastructure
- Dream Chaser can land on any runway that can accommodate a Boeing-737
- Landing requires no additional accommodations upon landing
- Offers immediate access to crew and cargo *anywhere in the world*

## Is Dream Chaser Global able to contribute to the Objectives discussed at the HLF?

- ✓ **Capacity Building**
- ✓ **Gateway to Outer Space**
- ✓ **Global Facilitator**
- ✓ **Bringing the Benefits of Outer Space to Human Kind**
- ✓ **Foster International Cooperation**
- ✓ **Sustainable Development Goals**



Respect the Past...Embrace the Future

**snc** SIERRA  
NEVADA  
CORPORATION™

Wings Are Back!



  
**Dream Chaser**™

*Dream Chaser: Dare to Dream – It's Your World!*

[www.SNCspace.com](http://www.SNCspace.com)

*Thank you!*



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