

NG-19

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Artists' impression of an Extended Cygnus; the spacecraft type to be used in the mission.	
Mission type	<span>ISS logistics</span>
Operator	<span>Northrop Grumman</span>
COSPAR ID	<span>2023-110A (<a href="https://nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=2023-110A">https://nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=2023-110A</a>)</span>
SATCAT no.	<span>57488</span> <div></div>
Mission duration	<span>25 days, 20 hours and 15 minutes (In Progress)</span>
Spacecraft properties	
Spacecraft	<span>S.S. <i>Laurel Clark</i></span>
Spacecraft type	<span>Enhanced Cygnus</span>
Manufacturer	<span>Northrop Grumman</span> <div><span>Thales Alenia</span></div>
Start of mission	
Launch date	<span>2 August 2023, 00:31:14 UTC<sup>[1]</sup></span>
Rocket	<span>Antares 230+</span>
Launch site	<span>Wallops Pad 0A</span>
Contractor	<span>Northrop Grumman</span>
End of mission	
Disposal	<span>Deorbited</span>
Decay date	<span>2023 (planned)</span>
Orbital parameters	
Reference system	<span>Geocentric orbit</span>
Regime	<span>Low Earth orbit</span>

NG-19 is the

<u>Inclination</u>	51.66°
<b>Berthing at the <u>International Space Station</u></b>	
<b>Berthing port</b>	<u>Unity nadir</u>
<b><u>RMS capture</u></b>	4 August 2023, 09:52 UTC
<b>Berthing date</b>	4 August 2023, 12:28 UTC
<b>Time berthed</b>	23 days, 8 hours and 18 minutes (In Progress)
<div></div> <div>Cygnus NG-19 mission patch</div>	
<b><u>Commercial Resupply Services</u></b>	
<b><u>Cygnus flights</u></b>	

nineteenth flight of the Northrop Grumman robotic resupply spacecraft Cygnus and its eighteenth flight to the International Space Station (ISS) under the Commercial Resupply Services (CRS-2) contract with NASA. The mission launched on 2 August 2023 at 00:31:14 UTC.<sup>[1]</sup> This is the eighth launch of Cygnus under the CRS-2 contract.<sup>[2][3]</sup>

Orbital ATK (now *Northrop Grumman Innovation Systems*) and NASA jointly developed a new space transportation system to provide commercial cargo resupply services to the International Space Station (ISS). Under the Commercial Orbital Transportation Services (COTS) program, Orbital ATK designed, acquired, built, and assembled these components: Antares, a medium-class launch vehicle; Cygnus, an advanced spacecraft using a Pressurized Cargo Module (PCM) provided by industrial partner Thales Alenia Space and a Service Module based on the Orbital GEOSTar satellite bus.<sup>[4]</sup>

This flight used the last remaining Antares 200 series LV, which was constructed in Ukraine and uses Russian motors. The next three Cygnus missions will use Falcon 9, and subsequent mission will use the next-generation Antares 300 series that does not depend on Ukrainian or Russian parts.<sup>[5]</sup>

## History

Cygnus NG-19 is the eighth Cygnus mission under the Commercial Resupply Services-2 contract. *Northrop Grumman Innovation Systems* confirmed on 23 February 2021 that Thales Alenia Space of Turin, Italy, will fabricate two additional Pressurized Cargo Modules (PCMs) for a pair of forthcoming Commercial Resupply Services-2 missions. Current plans are for the two additional Cygnus spacecraft to be designated NG-18 and NG-19.<sup>[6]</sup>

Production and integration of Cygnus spacecraft are performed in Dulles, Virginia. The Cygnus service module is mated with the pressurized cargo module at the launch site, and mission operations are conducted from control centers in Dulles, Virginia and Houston, Texas.<sup>[4]</sup>

## Spacecraft

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This was the fourteenth flight of the Enhanced-sized Cygnus PCM.<sup>[3][7]</sup>

## Manifest

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The Cygnus spacecraft was loaded with up to 3,729 kg (8,221 lb) of cargo.<sup>[8][9]</sup>

## Research

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The new experiments arriving at the orbiting laboratory will inspire future scientists and explorers, and provide valuable insight for researchers.

**NASA Scientific Research** studies: <sup>[10]</sup>

- Innovative Paralysis Therapy Enabling Neuroregeneration (Neuronix) - Sponsored by the ISS National Lab, demonstrates the formation of 3D neuron cell cultures in microgravity and tests a neuron-specific gene therapy. Gene therapy shows promise as a potential treatment for people with paralysis and neurological diseases such as Alzheimer's and Parkinson's, but the 3D models needed to test these therapies cannot be grown in Earth's gravity. Creating 3D cell cultures in microgravity could provide a platform for drug discovery and gene therapy testing.<sup>[10][11]</sup>
- Spacecraft Fire Experiments (Saffire-VI) - Understanding how fire behaves in space is vital for developing fire prevention and fire suppression methods, but flame-related experiments are difficult to conduct aboard an occupied spacecraft. The Spacecraft Fire Experiments (Saffire) use the Cygnus resupply craft after it leaves the space station to remove the risk to crew and spacecraft. Saffire-VI is the last of this series, building on previous results to test flammability at different oxygen levels and to demonstrate fire detection and monitoring as well as post-fire cleanup capabilities.<sup>[10]</sup>
- Exploration Potable Water Dispenser (Exploration PWD) - Uses advanced water sanitization and microbial growth reduction methods and dispenses hot water. This is an improved version of a system that was launched in fall 2008.<sup>[10][12]</sup>
- MVP-Cell-02A - Sponsored by the NASA Biological and Physical Sciences Division (BPS), MVP-Cell-02A is a study aimed at understanding how organisms evolve to adapt to the space environment. During the experiment, *Bacillus subtilis* bacteria will be grown in specially designed environmental hardware in a range of conditions, allowing researchers to investigate whether the adaptation process occurs differently in microgravity and in the spaceflight environment as a whole. MVP-Cell-02A is a repeat of MVP-Cell-02.<sup>[13]</sup>

## See also

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- Uncrewed spaceflights to the International Space Station

## References

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## External links

- Northrop Grumman Commercial Resupply, NASA page ([https://www.nasa.gov/mission\\_pages/station/structure/launch/northrop-grumman.html](https://www.nasa.gov/mission_pages/station/structure/launch/northrop-grumman.html))

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