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Science

NASA Langley Research Center

Athena

As Agencies Align, Athena Brings Wisdom and Strategy

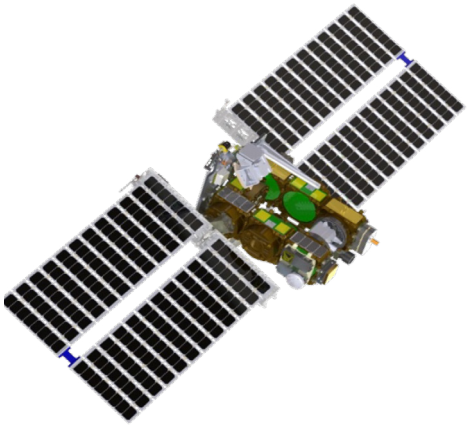
NASA, the U.S. Space Force, NOAA, and NovaWurks have strategically aligned efforts to gain wisdom from Athena — a SmallSat that will demonstrate the ability of NovaWurks SensorCraft architecture to support future missions. Athena serves as a pilot opportunity for transformational activities by pathfinding an innovative space vehicle architecture, learning from commercial best practices, implementing a whole-of-government approach, and reducing schedule to launch as well as lifecycle costs.

> *Athena will demonstrate the critical science measurement, but also an architecture that is adaptable and more cost-effective for the taxpayer and the government. - Kory Priestley, Athena Principal Investigator*

Athena teams at each organization are gaining technical knowledge from the hardware, but also in conducting business with partners and streamlining processes for a more robust and rapid development.

New Architecture, Big Rewards

Taking cues from human biology, specifically the structure and interactions of cells, NovaWurk's Hyper-Integrated Satlets, or HISat's, are engineered to aggregate, share resources, and conform to different sizes and shapes. The cellular architecture of the craft allows greater flexibility with payload designs and concepts, dropping the price-point, yielding greater access to space and multiple orbits to exploit observational capability.



"We're really merging the capabilities of the HISat's and the payload," Priestley said. "So, our payload doesn't need to bring as many resources to the overall effort."

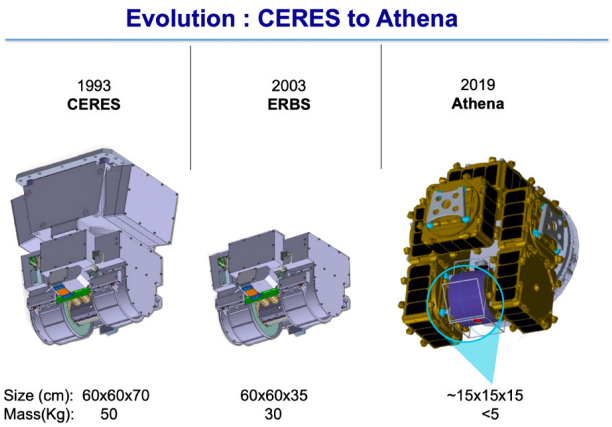
Given the seamless integration of the payload, sensor and the host craft, teams are easily finding new and needed applications and collaborations that Athena can provide for future remote sensing missions.

A Small Science Payload Evolved from CERES

Other NASA satellites, such as Terra and Aqua, are similar in size to a school bus. In comparison, Athena is much more compact.

“The complete Athena HISat platform will be about as big as the electric toy car my granddaughter drives around in,” Priestley said.

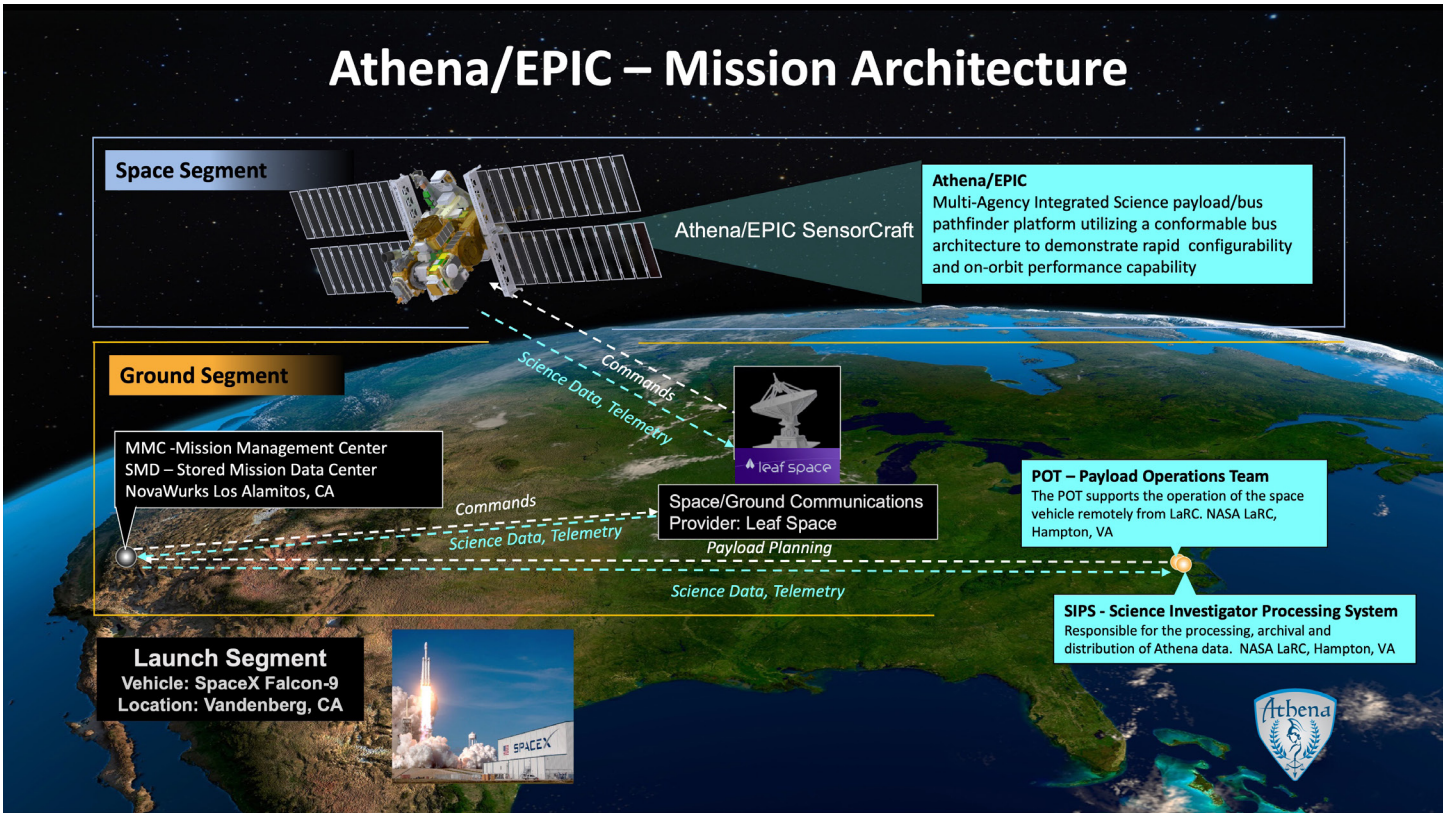
In 2020, NASA Langley delivered the Athena payload to NovaWurks. The payload consists of an Optical Module and a Calibration Module built with spare parts from NASA’s CERES mission and a newly developed Sensor Electronics Assembly.



Path to Launch

Athena is a one-year mission that has been selected to launch as a rideshare on a SpaceX Falcon 9 that is tentatively scheduled for launch in the spring of 2025 from Vandenberg Space Force Base, Calif., into a 1030 LTAN Sun Synchronous polar orbit.

Once in orbit, NASA’s Athena will collocate measurements with CERES instruments on other NASA spacecraft to demonstrate the capability of sustaining critical Earth Radiation Budget observation measurements well into the future.



National Aeronautics and Space Administration

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