ETA SPACE TO DEVELOP COMMERCIAL GAS STATIONS IN ORBIT FOR NASA

MERRITT ISLAND, FLORIDA, UNITED STATES, October 15, 2020 /EINPresswire.com/ -- ETA SPACE, an international leader in the development of Cryogenic Fluid Management (CFM) technologies for government and commercial customers, is pleased to announce the selection of its LOXSAT 1 as a winner of a 2020 NASA Space Technology Mission Directorate "Tipping Point" solicitation, which seeks to develop a range of technologies to help forge a path to Artemis sustainable operations on the moon by the end of the decade. Working with NASA technologists and key industry partners, Eta Space will develop the first cryogenic propellant depot in Low Earth Orbit (LEO) – designed with standardized interfaces allowing multiple commercial customers to realize the benefits and work them into their existing launch capabilities.

LOXSAT 1 in 500 km SSO

Eta Space Logo

"Critical to meeting NASA's goals of sustainable space exploration is the ability to refuel in space." says Eta Space CEO, Dr. William Notardonato. "NASA has been working on necessary technology development for many years and it is time to test these technologies in orbit. We are super excited that NASA recognizes the technical capabilities of the Eta Space team we are ready to execute the mission."

The LOXSAT 1 mission concept is to use a satellite platform in LEO to test a suite of CFM technologies, including active and passive thermal control, liquid acquisition, pressure control, and cryogenic transfer. These critical technologies have been developed and tested on the

ground, but only a demonstration in space will prove these technologies are ready for mission integration. The planned 9-month mission will provide the flexibility to perform a number of experiments with a variety of thermal conditions, and a dedicated free-flyer platform gives flexibility in maneuvering and liquid settling. "As the name implies, LOXSAT 1 will focus on liquid oxygen refueling" says Eta Space CTO, Dr. Jong Baik, "LOX is a common propellant across multiple launch service providers and is the heaviest of the rocket propellants. Working with LOX allows us to prove our CFM technology in orbit with a directly relevant fluid, one that all customers require. After a LOXSAT 1 technology demonstration, we will then focus on more challenging propellant combinations such as LOX/LH2".

Key to successful execution of LOXSAT is finding a launch provider with capability to deliver the payload to orbit and using an existing satellite bus to host the CFM payload. Eta Space has partnered with Rocket Lab USA (Long Beach CA) to provide launch and mission control functions for LOXSAT 1. "Rocket Lab has a proven launch and mission control capability with the Electron vehicle and the Photon satellite bus and we are confident that they will deliver and control our LOXSAT payload to meet our mission objectives", says Dr. Notardonato. "This frees up Eta Space to focus on our core capability of cryogenic fluid management".

Teammates in the LOXSAT 1 payload development also include multiple NASA centers, industry partners, and academia. NASA GRC (Cleveland OH) will be providing design and analysis expertise in microgravity liquid acquisition, NASA MSFC (Huntsville AL) will be working on a zero boil off techniques and NASA KSC (Merritt Island FL) will provide expertise in loading LOX thru a payload fairing. Altius Space Systems (Broomfield CO) will develop and test their cryogenic disconnect design concepts and YetiSpace (Huntsville AL) will provide thermal control design and analysis support. SunPower (Athens OH) will demonstrate a new high-power 90K cryocooler in space for the first time. The Florida Institute of Technology (Melbourne FL) will leverage off past work on ISS to provide a fluid visualization system, helping to anchor a number of zero-g thermo-fluid models.

Eta Space also plans to work with other launch vehicle providers in developing LOXSAT 2, a full scale LOX-RP1 depot in LEO capable of servicing multiple customers. Firefly Aerospace (Austin TX) is planning their first flight of the Alpha launch vehicle late this year and that mission success will provide additional launch options. The upper stage of their Alpha vehicle may also be modified to accept in-space refueling. Gilmour Space Technology (Queensland Australia) also plans to work on the LOXSAT 2 team to integrate standardized refueling capability in their vehicles. Eta Space plans to market the LOXSAT 2 capability to other commercial and international launch providers as well, providing the ability to launch SmallSats on dedicated low-cost missions beyond LEO.

About ETA SPACE: Founded in 2019 by NASA and contractor personnel with extensive experience in cryogenic propellant storage and handling, Eta Space develops and tests advanced cryogenic technologies for the Space and Energy sector. In addition to LOXSAT,

Eta Space also has active projects in the area of Lunar propellant liquefaction and storage, Lunar prospecting systems, launch pad development and testing, and hydrogen energy systems for terrestrial transportation applications.

Contact:

Dr. William Notardonato, President & CEO
info@etaspace.com
(321) 282-3855

William Notardonato
Eta Space
+1 321-412-5352
email us here
Visit us on social media:
Facebook
Twitter
